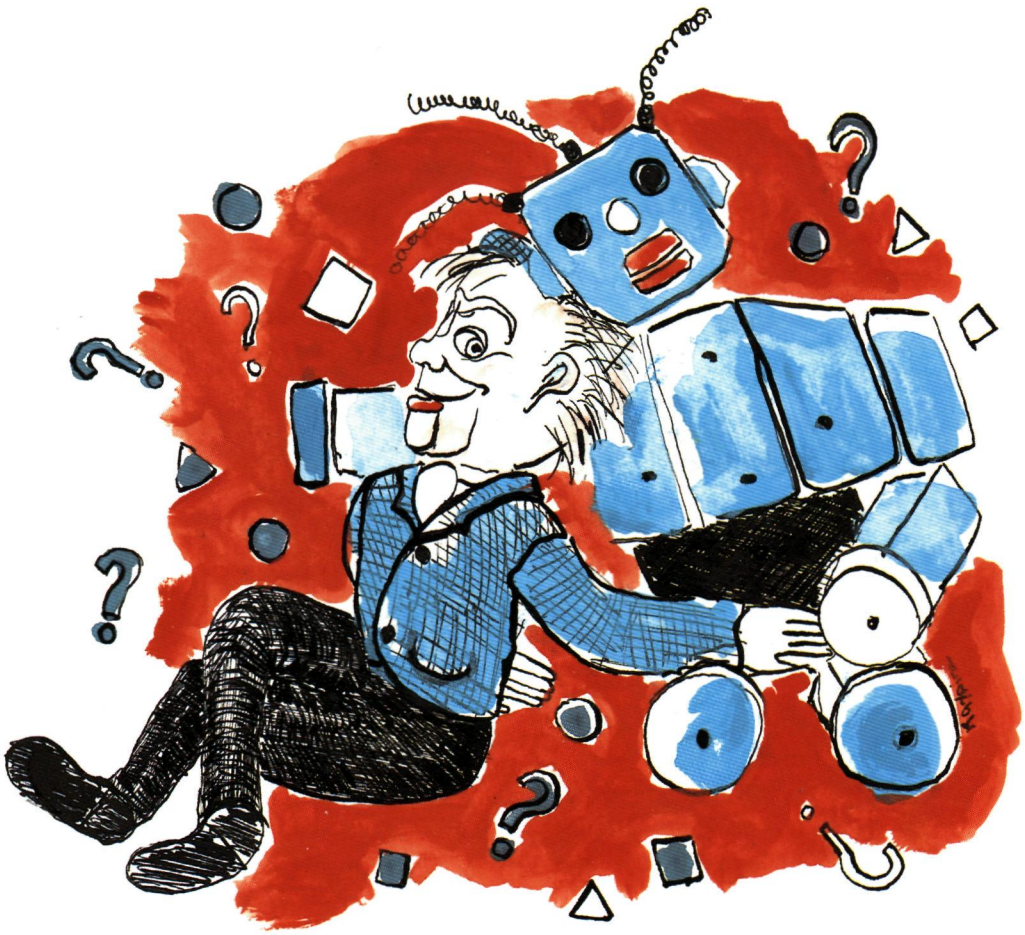
PLAY

A study into the observation of play and the relationships between play, creativity, leisure and parental characteristics



Lisette van der Poel

PHAEDON

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Een wetenschappelijke proeve op het gebied van de sociale wetenschappen

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Only one name figures on the cover of this thesis; mine. This insinuates that this thesis was brought to being by only one person. This is however far from true. Behind this one name lurks a perfect collaboration with countless other people; a collaboration of which I am as least as proud as I am of my thesis. Two other names you will come across if you continue reading this thesis are those of Eric De Bruyn and Marianne Riksen; my promotor and co-promotor. Without their expert advice and support this thesis would not have become what it is today. I hereby express my respect and gratitude towards them. A name which does not surface until later in this thesis is that of Henk Rost; the father of this project. A father because he created "Sjakie" (the ventriloquist's puppet) and the observation procedure. He was also a father because he was able to guide and motivate me, by giving me the right advice at the right moments.

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Chapter 1

Introduction

Whenever you ask a person whether (s)he knows what play is, the answer will invariably be confirmative. Everybody played in his/her childhood or has ever seen children playing. But do we really know precisely what play is? Consider the following event:

> *Two little boys are chasing each other at high speed. When the chaser, out of breath, finally gets his victim and raises his hand to hit him, you decide that it is your educational duty to interrupt this tête-à-tête. As you arrive at the scene of crime you see both boys smile and the victim says: "Okay, now it is your turn to run away." They seem to be rather amazed by your hasty arrival, so you tell them: "That is a nice chasing game you are playing." "It is not a chasing game. This is our fighting training. We are knights", is their answer. They obviously feel sorry for so much adult ignorance.*

This event will be recognized by many people who deal with children in one way or another. We may therefore ask ourselves: are we really that good at recognizing play? When, exactly, do we consider behavior to be playful? It may be a relief to hear, however, that even the most prominent researchers of play still face the same problem.

Many questions exist about play, not only concerning the characteristics of play, but also concerning its functions, determinants, antecedents and consequences. This is rather strange when one considers the fact that there has been a great deal of research and theorizing on play. Play was found to be such a complex phenomenon that some theorists even suggested that no further investigations be attempted in this area.

What method should we use to investigate this complex phenomenon? According to Vandenberg (1980), one of the main problems in former and recent play research is that a sound definition of play is lacking in most investigations. There seems to be a definitional gap between the theorizing on play and the play research; a method for measuring play is needed which is based on a sound definition of play and complies with the theoretical knowledge of play. Such a method would make it possible to test theoretical hypotheses about play more adequately. Furthermore, an operationalization of play that is based on clear-cut theoretical considerations, may make it possible to compare different studies more precisely. This may produce some understanding of the often found differences in the results of the many different studies.

The aim of this study is in fact twofold. The first aim is to find a method for observing play that is in accordance with the common theoretical views on play. The second aim is to examine relationships between play and several variables while using this method; relationships which can be assumed to exist on the base of former

theoretical and empirical findings. With reference to the first aim we share Vandenberg's opinion that the first step towards developing a reliable assessment of a person's play behavior is to formulate a sound definition of play. Until the present day a generally accepted definition of play has been lacking. Nevertheless many theories exist about the characteristics of play. In the next chapter these theories will be reviewed and a working definition of play as well as some guidelines for observing play will be deduced from this review. A procedure for observing play will be presented that was found to comply with these guidelines. In the third chapter this procedure and the measures that can be derived from it will be described extensively. Two different questions referring to play are investigated in this chapter. First of all, it is questioned whether play behavior may be influenced by the available play material. The second question concerns the consistency of play behavior over different situations.

In Chapters 4 and 5 the second aim is dealt with; examining relationships between play and other variables. These relationships may be assumed to exist on the base of theoretical and empirical findings. Four different variables will be related to play: creativity, leisure, parental attitudes towards play and parental behavior with reference to play. It will first be made clear why and how these variables are supposed to be related to play and to each other, by presenting a model concerning these relationships. In Chapter 4 the relationships between play, creativity and leisure will be investigated. Although the relationship between play and creativity has been investigated many times, the findings and conclusions resulting from these investigations are rather inconsistent. It will be examined whether a general personality trait (a general playfulness) may be the intermediating factor in this relationship, as is assumed by different theorists. Therefore the relationship between a person's play and his/her leisure will also be explored, since it is reasoned that this playfulness will become manifest in these behaviors pre-eminently. Chapter 5 will discuss the relationship between play on the one hand and parental behaviors and attitudes towards play on the other. This relationship was already examined in earlier studies but these studies only concerned very young children. The results of these studies as well as the present study will be presented.

In the sixth and last chapter of this study the results of the separate investigations will be discussed with reference to our general aims. It will also be suggested what future studies concerning play should concentrate on in order to gain more and valid insights into the characteristics of play, as well as into its relationships with other variables.

The different chapters of this manuscript are written as separate papers which can be read independently of each other. The data used to answer the questions in the different chapters are however assembled in one study. It may therefore be the case that some parts of the chapters (especially the parts concerning the method of investigation) contain information that was already presented in one of the former paragraphs. Chapters 3 and 4 have been submitted for publication and the results of a pilot study that was conducted with reference to the study in Chapter 5 have already been published (Van der Poel, De Bruyn and Rost, 1991).

References, see p. 27

PART ONE

Observing play

Chapter 2

Defining and observing play

Over this century a lot of research has been conducted considering play. Nevertheless many questions about play remain to which generally accepted answers have not been found, questions like "Why do people play?", "What is it good for?", "What is the difference between play and other behaviors?" and "In what way is it related to other behaviors?". These questions are connected in a more or less circular way. In order to gain more knowledge about the characteristics and functions of play, empirical research is needed, but empirical research requires an operationalization of play for which some theory on the characteristics of play is needed.

Vandenberg (1980) already concluded, with reference to his review of the investigations of the relationship between play and problem solving on one hand and creativity on the other, that the main shortcoming of many studies is the lack of a precise definition of play. As long as there are no clear ideas about which behaviors should be considered play and which should not, the question as to whether the results of these studies imply a relationship between problem solving and play or between problem solving and other, non-play behaviors (e.g., exploration) still remains. An analogous question can be asked with reference to other empirical studies. A first requirement for empirical studies is therefore a definition of play that makes it possible to distinguish play from non-play. Next a method for measuring play should be found which is in accordance with this definition and the existing theoretical knowledge of play.

In this chapter we will present a method for observing play which is based on clear-cut theoretical considerations. In order to do so we will review the most common views on the dispositional, observational and contextual characteristics of play and present a working definition of play that is based upon a combination of these views. Thereafter it will be proposed how play can be measured in accordance with this definition.

Three approaches on defining play

Although a generally accepted definition of play has been lacking until the present day, a lot of attempts at defining play have been made. As Rubin, Fein and Vandenberg (1983) pointed out, three approaches on formulating a definition of play can be distinguished. The first approach departs from the assumption of play as a behavioral disposition. Play is defined by looking for the dispositional characteristics, or in other terms, the motives and intentions behind the behavior that distinguish it from other behavior. The second approach consists of defining play by means of directly observable behavioral characteristics and the third approach on defining play, which is called the contextual approach by Rubin *et al.*., can be described as listing the condi-

tions that are necessary for and/or may facilitate the appearance of play. These approaches, however do not exclude each other. As Rubin *et al.* already noted "play is a *behavioral disposition* that occurs in describable and reproducible *contexts* and is manifest in a variety of *observable behaviors*" (p. 698). Therefore in order to formulate a working definition of play we should identify the dispositional factors that differentiate play from other behaviors. We should also formulate the observable behavioral manifestations of these dispositions and the context in which these manifestations are likely to appear. First we will make a summary of the three approaches and deduce the most important theoretical insights out of these approaches in order to combine them into a working definition of play.

Before doing so we should mention that we are aware of the fact that a fourth approach on defining play can be distinguished. As Smith (1988) mentioned one can also ask players themselves what makes their behavior playful. Such an approach was used by Chaillé (1978), for example, who investigated children's conceptions of play in different age groups. The results of this study show however, that these conceptions are strongly influenced by the children's level of cognitive development. In our opinion other variables, such as education and culture, may also influence the characteristics that are used to describe play. Therefore we decided to restrict this overview to the three approaches to defining play as distinguished by Rubin *et al.* (1983), in which play is defined by the researchers.

Play as a disposition

What makes it so hard to formulate a definition of play is that there is no such thing as *the* prototype of play. Play seems to have many different behavioral manifestations (Groos, 1899; Bühler, 1928; Piaget, 1951; Garvey, 1977). According to Garvey (1977) each behavioral pattern can be conducted in a playful and a non-playful way. Most of the time a playful behavioral pattern may have the same appearance as the analogous non-play behavioral pattern but it is conducted with a different orientation; in a different mode. This means that it is not so much the observable characteristics of the behaviors but rather the motives and intentions behind them (that is,the dispositional character) which determine whether they should be considered play or not. This conclusion leaves us with the question: what are the dispositional features that distinguish play from non-play?

A lot of theorists have been looking for structural characteristics of play at a dispositional level. (Huizinga, 1938; Piaget, 1951; Hutt, 1966, 1979; Berlyne, 1969; Csikszentmihayli, 1975; Garvey, 1977; Krasnor & Pepler, 1980). Although most of these theorists differ with regards to their theoretical viewpoints on the characteristics and functions of play, "……there has been considerable convergence on a number of interrelated dispositional factors that might serve to characterize play" (p. 698) as Rubin *et al.* (1983) concluded. They made a summary of the most important theories of play which lead them to the following six converging characteristics:

1. Play is an intrinsically motivated behavior that is neither governed by appetitive drives nor by compliance with social demands or inducements external to the behavior itself.
2. Play is characterized by attention to means rather than ends.
3. Play is guided by the organism-dominated question, "What can I do with this object?", as opposed to exploratory behavior which is guided by the stimulus-dominated question "What is this object and what can it do?"
4. Play is non-literal, simulative or, in Sutton-Smith's terms (1966; 1967), characterized by an "as if" representational set.
5. Play is free from externally imposed rules.
6. Play requires the participant to be actively engaged in an activity.

However, as Rubin *et al.* mentioned, accepting all these characteristics as the marking features of all play would reduce play to a very limited set of behaviors. According to these characteristics only behaviors conducted in an "as if" mode (called pretend or symbolic play in most theories) can be considered play.The reason being that these are the only intrinsically motivated, organism-dominated actions with no specific end that are conducted in a quasi-reality which is free of externally imposed rules. Most theorists are convinced that symbolic play is only one of the many types of play. A different view arises when one considers these six characteristics as manifestations (typical for symbolic play) of more general features of play.

Although Rubin *et al.* made an important step towards gaining new insights into the dispositional characteristics of play by presenting this summary, they did not go beyond a descriptive level of analysis. In our opinion we can translate these characteristics into more general dispositional features. We therefore inspected the characteristics as summarized by Rubin *et al.* (1983), in order to examine whether they could be subsumed into more general features. This lead us to the following three features:

1. Play acting is autotelic by nature.
2. Play acting takes place within a frame of strictly binding but voluntarily accepted rules and meanings.
3. Play implies active engagement.

In the next section we will explain these features and show how the characteristics of Rubin *et al.* (1983) can be considered as manifestations of these features.

*1. **The autotelic nature of play:***
Intrinsic motivation and the attention to means rather than ends

Intrinsic motivation is a characteristic of play that is mentioned in nearly every theory on the characteristics of play (Buytendijk, 1932; Huizinga, 1938; Piaget, 1951; Berlyne, 1966; Ellis, 1973; Garvey, 1977; Vandenberg, 1978; Krasnor & Pepler, 1980; Smith & Vollstedt, 1985). Play is voluntary; it is motivated from within the organism itself, not triggered by any stimulus outside the organism nor by interior stimuli such as, for example, appetitive drives. Although some interior and/or exterior stimuli may

facilitate or inhibit the occurrence of play (Rubin *et al.*, 1983; Singer & Singer, 1990) and will influence the contents and/or form of play (Piaget, 1951; Erikson, 1963), they do not determine whether a person will actually play or not. There are certain necessary preconditions for play to happen (Sutton-Smith, 1979; Rost, 1986), but the presence of these conditions does not guarantee the occurrence of play. Whether an organism will play or not is in the end determined within the organism itself. Some theorists, like Lieberman (1977) and Barnett (1991) for example, suggest that play should be seen as a personality trait. Some people will be more likely to play than others, depending on their structure of personality. Other theorists (Berlyne, 1966; Hutt, 1966; Ellis, 1973) assume that people play because of their motivation to reach an optimal level of arousal. Although their opinions on the strategies and mechanisms that are used to reach this pleasurable state of arousal may differ, they all agree on the assumption that people play in order to reach and/or maintain this pleasurable level. Another point of view on the motives behind play is the assumption that people play in order to experience competence in their interaction with the surrounding environment (Huizinga, 1938; White, 1959; Erikson, 1963; Csikszentmihayli, 1975). All theorists however, agree on one point: whatever the motives behind play look like, they all stem from within the organism and therefore make play intrinsically motivated.

Another characteristic of play, which is mentioned by many play theorists (Piaget, 1951; Bruner, 1972; Csikszentmihayli, 1975; Garvey, 1977), is that in play, attention is paid to means rather than ends; play is autotelic by nature. Autotelic literally means "having its goal (telos) in itself (auto)". This means that playful acting takes place because the acting is rewarding in itself, not because of a certain rewarding goal that may be attained by this acting. Play acting occurs for no other reason than for the pleasure derived from the acting itself. This implies that play acting is not regulated by external constraints, since it is not guided by reaching a certain goal, and it is only triggered by the pleasure derived from the acting itself. In fact we are saying that autotelic acting is intrinsically motivated. In other words, the first and second feature as distinguished by Rubin *et al.*; the intrinsic motivation and the attention to means rather than ends, can both be considered reflections of the autotelic nature of play.

2. ***Framing reality according to self-imposed rules and meanings:*** *domination of the organism's will and needs, the non-literal nature and the freedom of externally imposed rules.*

The fourth characteristic that was distinguished by Rubin *et al.* (1983) is the simulative nature of play; as they said: "...play behaviors are not serious renditions of the activities they resemble" (p.699). This characteristic is also mentioned by Vygotskij (1966), Sutton-Smith (1966, 1967), Aldis (1975), Garvey (1977) and Krasnor and Pepler (1980) among others. Further on in their manuscript Rubin *et al.* criticized this feature because it "...restricts play to behaviors generally referred to as pretense" (p.699). In our opinion, however, this feature may also be seen as a manifestation of a more general characteristic. By acting simulatively, the player creates his/her own

(piece of) reality (Sutton-Smith (1979) calls this "his/her frame") governed by its own self-imposed rules. Acting within this frame has consequences within the frame only and no implications for the world outside this frame. Since the player's acting within the play frame is governed by his/her own voluntarily accepted rules, rules from the world outside this frame no longer apply. Thus the player is free from externally imposed rules, which was mentioned as a fifth characteristic by Rubin *et al.*. Because the acting within the play frame has no implications for the world outside the frame, one is free to act according to one's own will and needs. This means that the acting is organism-dominated, another characteristic mentioned by Rubin *et al.* that is in fact a translation of the more general characteristic implying play to be governed by the organism's self-imposed rules and meanings.

3. Active engagement

The last dispositional characteristic that was mentioned by Rubin *et al.* (1983) is that play implies active engagement. An investigator of play will only be able to determine whether an organism has playful intentions when these intentions become manifest in one way or another, and the only way in which the playful intentions can become manifest is by active behavior. In our opinion this characteristic is not really a dispositional characteristic, since it refers to active behavior. It is an important characteristic, however, with reference to formulating a working definition that is needed for a sound operationalization of play.

In summary the dispositional approach shows that play can be defined as *active, autotelic behavior, governed by self-imposed rules and meanings.* We realise that accepting this definition of play will have some implications that may contradict often held ideas about play. Perhaps the most striking implication is that this way of defining play does not restrict play to behavior that is conducted by children only. Adults may also act in an autotelic way and in doing so let go of reality. Thus we may say that adults play as well. The idea of adult play is however not entirely new. According to Huizinga (1938) adult play forms the base of human culture. Reijnaerts and Rost (1987) noted from the work of Csikszentmihayli (1975) that there are striking similarities between the dispositional and functional characteristics of autotelic adult activitities and those that are usually distinguished for children's play.

On the other hand, a lot of children's activities that are considered to be play by adults (investigators of play included!) may not really be play. Whenever the child is "playing" in order to fulfil an adult's wish, (at home, in the classroom, in an experiment) (s)he is in fact extrinsically motivated to act, for example, gaining approval of the adults. Thus, the autotelic nature of the activities is taken away.

Accepting the dispositional features of play (mentioned above) as defining features of play is in accordance with the existing theoretical and empirical studies on the functions of play. Since play acting has no external goal and no consequences outside the play frame, the acting does not need to be efficient. This provides the player with the opportunity to freely practice all kinds of newly acquired abilities; a function of play

recognized by many play theorists (Groos, 1899; Piaget, 1951; Vygotskij, 1966; Feitelson & Ross, 1973; Fein, 1975; Watson & Fisher, 1980). It also provides the player with the opportunity to try out all possible combinations of actions, material, etc. and thus enables the player to test different solutions to a problem of any nature whatsoever. This will make a player more flexible and creative, both in and outside the play frame which is another often mentioned function of play (Sutton-Smith, 1966, 1967; Bruner, 1972). A third function of play that can be explained by the framing of reality according self-imposed meanings, is that play offers the player the opportunity to master his/her emotional conflicts. Since in play everything can happen according to the player's wishes, the player will be able to master conflicts or fulfil wishes that (s)he may not be able to manage outside the play frame and in this way ameliorate emotional discord. This function is mainly proposed in the psycho-analytic theories but also by other theorists, for example, Huizinga (1932), Piaget (1951), Vygotskij (1966) and Garvey (1977).

Play as observable behavior

A second approach on defining play consists of looking for observable behavioral characteristics of play. How is one able to observe whether behavior is playful by nature? Within this approach two strategies can be distinguished. The first strategy consists of looking for overt communicative signs that reflect the actor's playful intentions.The second strategy consists of dividing play into different types of play in such a way that every type has common observable characteristics.

The first strategy is especially effective for observing social play. In this type of play the participants need to communicate overtly to their playmates that their acting is meant to be playful in order to make the playing together possible and agreeable. According to Bateson (1955), the message "this is play" will have to be communicated. Bateson (1955) states that this message should be seen as a meta-communicative statement because by this message one communicates: "...these actions, in which we now engage, do not denote what would be denoted by those actions which these actions denote" (p. 121).

Let us first summarize the overt communicative signs that reflect the actor's playful intentions. According to Sutton-Smith (1979) it is mainly the framing and reframing of "reality" which indicates that acting is conducted in a playful mode. In order to be able to play together the players should agree on the rules that will govern the play frame. This may be done by direct verbal considerations (Garvey, 1977), but also by the various other techniques that the player may use to make a clear contrast between playful and non-playful acting, such as:

- grammatical changes: while creating the frame one mostly speaks in the past tense, but within the play frame itself, in the so-called drama (Sutton-Smith, 1979), the present tense is used.
- vocal changes: within the play frame one often speaks in a high-pitched voice and

more articulated than outside the play frame,
- mimicry: in order to invite another person to play one may put a certain expression on his/her face, the so-called playface, by raising one's eyebrows, widening the eyes and smiling,
- exaggeration of one's actions/movements (Marcoen, 1984).

During solitary play the dispositional characteristics will not be communicated as overtly as in social play, and therefore one has to look for covert signs. In fact this is done while using the second strategy. As mentioned earlier in this manuscript, play acting in general cannot be defined by certain specific behavioral characteristics because play manifests itself in numerous ways. Therefore many play theorists grouped these manifestations into specific behavioral categories. Since the grouping of the different manifestations can occur according to many different criteria, many different categorisations of play behavior arose; the nature of the categorisation depended on the chosen criterium. Play behaviors can be categorized according to the functions that the play acting may serve (Groos, 1899), the origins of the play behaviors (Hall, 1920), and the appearance of the different types of play during the ontogenetic development (Bühler, 1928). These categorisations may in their turn be linked to ego development (Vermeer, 1955; 1963), social development (Parten, 1932), cognitive development (Piaget, 1951), etc.

The categorisation of play behavior that is frequently referred to, is the one developed by Piaget (1951). Piaget defined play as purely assimilative, non-adaptive acting and distinguished three different types of play:

1. Practice play: in which already acquired sensory-motor or mental actions are reproduced and/or combined out of their usual contexts.
2. Symbolic play: in which objects, actions and/or persons represent other absent objects and/or persons.
3. Games with rules: games with sensory-motor or intellectual combinations in which there is competition between individuals and which are regulated either by a code handed down by earlier generations, or by temporary agreement.

The studies that will be reported in the next chapters depart from this categorisation for various reasons. First, the categorisation has an extensive theoretical basis. Second, many later categorisations are at least partly deduced from the Piagetian categorisation (e.g. Largo & Howard, 1979; Belsky & Most, 1981; Hellendoorn, 1991; Lyytinen, 1991) and the third reason is that empirical evidence was found for the developmental sequences of the Piagetian stages.

With reference to the first reason it can be mentioned that Piaget categorized the play behaviors according to their appearances during the ontogenetic development; symbolic play appears at a later stage during the lifespan than practice play and both practice and symbolic play appear before games with rules arise. The categorisation parallels the cognitive development implying that every different type of play stems from a different cognitive structure or, in Piagetian terms, scheme. Practice play will arise during the sensory-motor stage of cognitive development, while the stage in which symbolic play is most often played more or less parallels the pre-operational stage, during which a

child is able to use symbolic schemes. However, the onset of the use of symbolic schemes starts before the onset of the pre-operational stage; in fact, it reveals the transition from the sensory-motor to the pre-operational stage. As Piaget mentioned "practice games are the first to appear, and characterise stages II to V of preverbal development, in contrast to stage VI when symbolic games begin". (1951, p.111). The games with rules will not occur before the child is able to understand rules, and this understanding of rules emerges during the concrete-operational stage of development. Every type of play serves a different function: by playing practice play, sensory-motor schemes are practised; by using them in a playful way they are consolidated (Piaget, 1951) which enables the child to use them more easily, both during and after play. By playing symbolically the use of a signifier is consolidated as well as the earlier mentioned coping with emotional discord. In games with rules, consolidation of the rules of social reciprocity takes place (Piaget, 1951).

The second reason why this categorisation was preferred is the empirical evidence found for the developmental stages. As Gown, Goldman, Johnson-Martin and Hussey (1989) mentioned that "studies of the development of pretense or symbolic play tend to support the development sequence identified by Piaget" (p.54). Belsky and Most (1981) also found empirical evidence for the sequence of types of play which show much resemblance to the Piagetian practice and symbolic play types.

Third, the Piagetian categorisation was to a certain degree used as a basis for the later categorisations. However, these later categorisations are either restricted to symbolic play only (e.g. Fein, 1975; Lyytinen, 1991) or do not make a strict distinction between play and non-play behaviors, e.g. exploration (Belsky & Most, 1981) or imitation (Largo & Howard, 1979). Such a clear distinction is in our opinion indispensable for a reliable observation of play.

A type of behavior that is not seen as a type of play by Piaget (1951) but mentioned as a different type of play by others (e.g. Smilansky, 1968; Rubin *et al.*., 1983) is the so-called constructive play, which can be described as combining material in order to make it represent something else. According to Piaget, one cannot speak of pure assimilation with reference to constructive play, since fitting material into a certain prescribed form is accommodative acting. Piaget considered constructional games as a transition between the three types of play mentioned above and adaptive behaviors. He mentioned that "constructional games do not form a category of the same kind as the others, but are a boundary class between games and non-ludic behaviors" (1951, p.110). A different point of view evolves, however, when we consider this restructuring of material as making the material fit into a presentation which is given a meaning according to the actor's own will and needs. This implies that the material is used out of its usual context and no longer has its usual instrumental meaning, which are the same characteristics as Piaget used to define the other types of play. Thus, in our opinion, this process can be seen as pure assimilation and constructive play can therefore be considered as a fourth type of play.

In summary the approach of defining play based on observable characteristics first of all shows that the communicative messages playmates send to each other in social play can be used as signs indicating that behavior should be interpreted as play. Secondly,

it shows that the different manifestations of play can be categorized into different types of play, in which every type of play has its own observable characteristics. The presence of these characteristics reveals the playful nature of the acting. When we observe sensory or motor actions being repeated or combined outside their usual context, we may speak of practice play. When we observe that objects, actions and/or persons are given meanings that they do not have in their usual context, we may speak of symbolic play. When we observe people acting according to rules that do not have any meaning or consequences outside this specific context, we can speak of games with rules and when we observe that material is formed in order to give it a meaning it does not have in its usual form, we can speak of constructive play.

Play conditions

A third approach on defining play departs from the assumption that play can only arise under certain conditions. A lot of research has been conducted in order to investigate which conditions make play likely to arise. Harrington, Block and Block (1987) found that children were more playful when they were offered the psychological safety and psychological freedom that Rogerian theory proposes. Psychological safety will be experienced when a person is accepted unconditionally and treated with empathy. Psychological freedom will be provided by allowing a person to express him/herself symbolically, with few constraints (Rogers, 1954). According to Rogers this will be realised when caregivers offer the child an openness to experience an internal locus of control, and the ability to toy with elements and concepts. Singer and Singer (1990) made a review of the studies on the conditions that caregivers have to provide in order to enhance children's playfulness and concluded that children are more playful when the caregivers' responses to the child's play are sensitive to the child's needs and level of development, and provide the child the psychological freedom and safety described by Rogers. The same results were found by Van der Poel, De Bruyn and Rost (1991). They found that children were more playful in a quantitative and a qualitative sense when their parents were sensitive to their needs and developmental level, respected their autonomy, and stimulated them to be active, but also made it clear that there were certain limits to the play opportunities.

Rubin *et al.* (1983) mention the same conditions for evoking play, with the only difference being that their conditions are aimed at fostering play in a research situation. The conditions they formulated are as follows. There should be:

1. an array of familiar peers, toys or other materials likely to engage children's interest, (providing the ability to be active and to play but sensitively adjusted to the developmental level of the child)
2. an agreement between adults and children.....that the children are free to choose whatever they wish within whatever limits are required by the setting or the study, (clear limits)

3. an environment where adult behavior is minimally intrusive or directive (respect for autonomy)
4. a friendly atmosphere designed to make the children feel comfortable and safe, (unconditional acceptance)
5. a scheduling procedure that reduces the likelihood of the children being tired, hungry, ill, or experiencing other types of bodily stress (sensitive to needs).

This approach shows us the conditions that may facilitate the occurrence of play. Using these conditions as defining characteristics of play implies the assumptions that every behavior arising under these conditions is by definition play, and that play can arise under these conditions only. Our point of view differs from these assumptions; although we agree that these conditions may be facilitative in evoking play, we do not consider them necessary for the occurrence of play, since play may also arise without these conditions being present. It should also be realised that the conditions do not guarantee that play will indeed occur, and it may be the case that other, non-play, behaviors may also arise under these conditions. The conditions may be of great help, however, when a researcher wants to evoke play, as the next section will show.

Towards a definition of play

In this section the theoretical knowledge of play as provided by the different approaches will be summarized and combined into a working definition of play that provides us with a sound base for observing play adequately.

First of all, the review of the various theories of play lead us to three dispositional features that characterize play. At a dispositional level play can be defined as autotelic (1) acting (3) that takes place within a piece of reality that is framed by self-imposed rules and meanings (2). Furthermore we concluded that these dispositional characteristics manifest themselves in many different ways and that play behavior can be categorised into different types of play according to common observable characteristics. We also concluded that the Piagetian categorisation (extended with a category referring to constructive play) was the most complete since it took note of the different cognitive structures of the various types of play and their various functions, as well as their appearances during the ontogenesis. We will now have to answer the question: in what way do the dispositional characteristics of play become manifest in these types of play behavior? This question should be asked since the observable characteristics of the different play types are in fact different manifestations of the same dispositional features of play. We will therefore explain for each separate type of play how the playful disposition can be deduced from the behavioral manifestations.

Practice play. As mentioned earlier practice play implies acting for the sake of acting. The repetition of actions and the combining of actions and/or objects just in order to find out what one can do with them shows that means are more important than ends, and in this way reveals the *autotelic nature* of the acting. As Piaget (1951)

mentioned, the actions are taken out of their usual context. The acting does not have its usual instrumental meaning, and therefore does not have its usual consequences. In other words the acting takes place within a certain frame of reality; the so-called *play frame with its own meanings and consequences.*

Symbolic play. In symbolic play, the playful nature of the acting becomes manifest in the simulative nature of the acting. By attributing a different meaning to objects, actions and persons, one creates a reality that differs from the usual reality, or in other words, a *play frame.* The fact that the acting is often reframed, indicates that the players have no specific end in mind; the acting itself is more important than the eventual results of the acting, thus showing the *autotelic nature* of the acting.

Games with rules. The creation of the *play frame* is especially obvious in this type of play. The acting within the play frame has to take place according to the rules of the game, which only regulate the acting inside the play frame and do not have any value outside the play frame. The autotelic nature on the other hand, is not that obvious at first sight, considering the fact that the acting is lead by rules which are externally regulated and by the reaching of a goal, in this case winning. A different point of view evolves however, when these rules and the reaching of a goal are considered to be "deliberate complications" (Rubin *et al.*, 1983). They defined these deliberate complications as obstacles created in order to derive more pleasure from the acting. As Rubin *et al.* mentioned with reference to Piaget's practice play, a child's pleasure derived from play stems from the feelings of competence.Thus, the harder the task to be fulfilled, the more competent a child will feel, with the result being an increase in the amount of pleasure experienced. Therefore, in order to enlarge one's feelings of competence, the acting may be deliberately made more complicated by creating obstacles. Accepting rules and trying to attain a certain goal may also be seen as complications that are created in order to heighten the pleasure derived from the acting. This means that the reaching of a goal supports the acting rather than the reverse, which shows the *autotelic nature* of the games with rules.

Constructive play. The same reasoning can be followed with reference to constructive play. The combining of material and/or objects into a certain representation can be considered play, if the goal of the acting serves as a "deliberate complication" whereby the acting becomes a bigger challenge and thus more rewarding. In this way the *autotelic nature* of constructive play is reflected in the same way as in games with rules. Piaget (1951) mentioned with reference to constructive play that it can be suggested that "... constructional games form a special category, to be placed both between sensory-motor and symbolic games" (p.109), since in constructive games both sensory-motor and symbolic representational acting is present. The fact that the constructions are representations of something else, which means that the actor attributes his/her own unusual meaning to the material reveals the existence of a *play frame with different meanings* attributed to the material world, like in symbolic play. Piaget added, however, that constructional games can also be placed "...between these two (types of play) and adapted activity". This implies that constructive acting can only be considered playful when imitating reality is less important than the constructive acting itself, or in other

terms, when the acting is indeed autotelic. A manifestation of the autotelic nature is that the goal of the acting (the representation of the construction) is often changed during the constructive process. This shows that the constructive acting itself is more important than the results of the acting.

The third approach (departing from the assumption that play can only arise under certain conditions) taught us which conditions will facilitate the occurrence of play. As we mentioned earlier we do not consider the presence of these conditions as a defining characteristic of play, but they are certainly helpful as a reliable means by which to recognize the dispositional characteristics of play. Considering the autotelic nature of play, acting can only be interpreted as play when the acting is voluntary and serves no extrinsic goal. Therefore we should be certain that the acting does indeed stem from free choice. In order for play to occur, the following conditions must be met: first, it is important to consider the child's personal level of development when choosing materials and/or playmates. Second, an atmosphere of unconditional acceptance should be created, and lastly the child should be free to choose (within limits) whatever s/he wants to do. Thus, if acting takes place, it will most likely be voluntary. The conditions fit in with the dispositional characteristics of play, since children will only step into their own reality (i.e., their own play frame) when they feel safe and comfortable and do not have to control their environment. Besides, these conditions provide the child the opportunity to act autotelicly; the child is free to do what (s)he wants and since the child is given unconditional acceptation, his/her acting does not have to be effective.

Conclusions concerning the observation of play behavior

With reference to empirical research, the above mentioned conclusions can be translated into the following guidelines for observing play:

1. The conditions that facilitate the occurrence of play behavior need to be present. In order to be certain that the acting is in agreement with the dispositional characteristics of play, it is very important that the actor is offered the opportunity to voluntarily choose for the acting, when one considers the autotelic nature of play. Instructing people to act playfully may take away the intrinsic motivation of the acting and therefore turn the acting into an assignment rather than voluntary play acting. A way to invite people to play that complies with the autotelic nature of play is by creating the right conditions: the subjects should be able to choose whether they want to play or not, they should be made to feel at ease and unconditionally accepted and be offered play objects and/or playmates that are tuned to their own developmental level.
2. The investigator should check precisely whether the behaviors that occur under these conditions are indeed play behaviors. Therefore, one should record all behaviors, and classify them into categories that reflect the dispositional character of the behaviors in an unambiguous way. As was shown earlier in this manuscript, Piaget's (1951) categorisation of play provides clear guidelines for such a classification. This

does not mean that other classifications may not provide adequate guidelines. It is important however that one should first make clear, for every play category separately, by what behavioral characteristics the playful dispositions become manifest and how it can distinguished from non-play behaviors.

3. The method of observing play behavior needs to be tuned to the dispositional characteristics of play behavior. Whether the attainment of the goal is indeed less important than the acting itself and whether the acting has a different meaning than it usually has, is often only observable after a play episode is finished. At that moment it is possible to observe whether the results of the acting have consequences outside the play frame or not. Garvey (1977) illustrates this phenomenon by an example of two people chasing each other. Not until the moment the first person is caught by the second person and one observes the reactions of both people, (which is laughing in the example) is one able to interpret the acting as "real" chasing or as its playful analogy. This leads us to the important conclusion that it is necessary to observe the process of acting as a whole and this requires a continuous observation of the acting. It will be clear that by using an alternative method such as time-sampling, one may miss certain essential information.

An observation procedure for play

A procedure which is in accordance with these guidelines is the observation procedure developed by Rost (1986). The procedure will be described in detail in the next chapter. However in short, it consists of the inconspicuous recording of the children's behavior when they are confronted with a play object in a waiting room. The procedure complies with each separate guideline in the following ways:

The first guideline (stating that one should respect the autotelic nature of play) is taken into account by creating the five conditions mentioned by Rubin, Fein and Vandenberg (1983). Rost (1986) created these conditions in the following ways.

1. According to Rubin *et al.* children should be provided with materials that allow them to play that comply at their own developmental and interest level. Rost therefore presented the children a play object that could be played with at different developmental levels. In Rost's (1986) study it was found that the play object, (a ventriloquist's puppet) was indeed able to gain the children's interest, thus Rubin et al's first condition was created.
2. The second condition mentioned by Rubin *et al.* is an agreement between the experimenter and the child that the child is free to choose whatever (s)he wishes to do within the limits of the experiments. This condition is created by telling the children to do whatever they want within the waiting room as long as they do not break anything.
3. In Rost's procedure the experimenter is absent during the confrontation with the play material. This makes her/him neither intrusive nor directive, which complies with the third condition.

4. The fourth condition, that states that there should be an atmosphere in which the child feels accepted and at ease, is created by videotaping the children's behavior inconspicuously and by playing some other games, in order to help the child become acquainted with the unknown experimenter and situation.
5. The subjects' play behavior is observed during school hours which reduces the likelihood of the child being tired or hungry; the last condition mentioned by Rubin *et al.* (1983).

The second guideline is that since play can become manifest in numerous ways, one should classify it into unambiguous behavioral categories. This guideline is taken into account by designing a classification-system with exhaustive and mutually exclusive categories. This system will also be presented in the next chapter. Three of these categories refer to the different types of play as described by Piaget (1951), which make a strict distinction between the different types of play and non-play behavior. The procedure uses the theoretical knowledge on the difference between play and non-play in another way as well. It is also based on Garvey's (1977) insights that the mode of behavior, that is, whether behavioral patterns are conducted with a playful or a non-playful intention, is best noticed in situations in which play behavior can be contrasted with ongoing non-play behavior. A type of non-play behavior that often precedes play (and is often confused with play because of unprecise observation), is exploration (Hutt, 1966; Weisler & McCall, 1976). Therefore Rost built several unknown possibilities in his play object. The contrast between the exploratory behavior evoked by these possibilities and the playful behavior that follows in most cases, makes it possible to distinguish play more precisely.

The third guideline says that one should use a continuous way of observing play in order to be able to reliably observe whether the subject is acting with playful intention. This guideline is taken into account by videotaping the children's behavior; this makes it possible to code the occurring behavior every second, using the classification system mentioned above.

Rost's procedure shows that it is indeed possible to observe play in accordance with the theoretical knowledge on play. It may be clear that this procedure is not the only possible procedure for observing play that is in accordance with the theoretical insights. This procedure however, provides a clear example of how to achieve the rather difficult task of combining theoretical knowledge with empirical research when investigating play. In our opinion however, this combination is indispensable if one wants to gain valid insights into the characteristics of play as well as its functions and relationships to other variables.

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Chapter 3

The consistency and object-dependency of play

The present study concerns the solitary play behavior of children when presented with specific play material. In order to interpret the solitary play behavior of an individual person knowledge of two issues is needed.The first refers to the effect of play material on solitary play behavior, and the second concerns the consistency of individual solitary play behavior. The present study adresses these issues.

In earlier studies it was demonstrated that the structure of play material may affect the amount, quality and themes of play behavior (Pulaski, 1970, 1973; Olszewski & Fuson, 1982; Robinson & Jackson, 1987). However, the results of these studies are not univocal. Robinson and Jackson (1987) find that children show longer episodes of fantasy play with highly structured material than with low structured material, while Pulaski (1973) found that less structured material may enhance children's play in the sense that it leads to a higher variety of play themes, although these differences did not reach a significant level. Olswezki & Fuson (1982) did not find any influence of the structure of material on the amount of play. They found an effect of the presence of extra props on the amount of play, in the sense that 3-year-olds' play show more play when extra props are present while the reverse is found for 5-year-olds. Besides the fact that the results of these studies are not univocal, it can also be mentioned that they are restricted to symbolic play only. It may be that other types of play are influenced differently by specific characteristics of play material, especially when older children are concerned, as is the case in the present study. Therefore, the first aim of the present study is to investigate the effect of play material on solitary play (i.e., object-dependency) of 9- to 12-year old children, in which besides symbolic play, other types of solitary play are also included.

Another finding of the study of Pulaski (1973) is that a predisposition to fantasy was a better predictor of the children's play than available play material. Children who scored high on the fantasy predisposition showed more variety of themes, more absorption and more enjoyment in their play than children who scored low on this predisposition. It seems that they are rather consistent in their play over different situations. Although the recognition and observation of different types of play behavior in certain situations has been the subject of several studies (Bühler, 1928; Parten, 1932; Hutt, 1966; Fein, 1975; Rosenblatt, 1977; Matthews & Matthews, 1982; Smith & Vollstedt, 1985; Rost, 1986), as far as we know, the degree to which play behavior is consistent over different situations has never been examined. This will be the second aim of this study.

It is important to realise that both issues demand research designs of a different type. The issue of the object-dependency of play can be studied in an experimental design in which the play object is the independent variable and play behavior is the dependent

variable. The second issue, referring to the consistency of play, can be studied by means of a correlational study in which characteristics of the play behavior of each individual child with one object is related to his/her play behavior with the other object. In the present study both types of designs are combined. Since some age-and gender-effects were found in the study of Olzsewky and Fuson (1982) as well as in the Pulanski-studies (1970, 1973), the issues of object-dependency and consistency of solitary object-play are studied for both boys and girls of different age levels.

Method

Subjects

Ninety-six children participated in the study. The children were divided into three age groups: 9-year-old children ($\underline{M}=9$ years and 6 months, $\underline{SD}=3.8$ months), 10-year-old children ($\underline{M}=10$ years and 6 months, $\underline{SD}=3.3$ months) and 11-year-old children ($\underline{M}=11$ years and 7 months, $\underline{SD}=3.9$ months). Each age group consisted of 32 children; 16 boys and 16 girls. The mean age for the boys was 10 years and 7 months ($\underline{SD}=11.1$ months), and for the girls it was 10 years and 5 months ($\underline{SD}=10.6$ months). All children were attending a normal Dutch elementary school. A letter was sent to the parents of all 9-to-11-year-old pupils of four schools. In this letter they were asked whether they and their children were willing to participate in the study. About 25% of the parents and children answered this letter affirmatively. From this group of children 16 boys and 16 girls of each age group were chosen at random. The play behavior of one 9-year-old boy could not be observed because of a technical problem while videotaping his behavior. One 11-year-old girl fell ill during the study leaving our sample with 94 subjects.

The play objects

The subjects were confronted successively with two different play objects, a ventriloquist's puppet and a robot (see figure 3.1).

Four different cause-effect-contingencies were built into the ventriloquist's puppet that could be detected by the children during their play and/or exploration, that is:

- the nose could be lit up by pressing a button inside the puppet,
- a buzzing sound could be made by pressing another button inside the puppet,
- the eyes could be opened and closed by manipulating a trigger inside the puppet,
- and the mouth could be opened and closed by manipulating another trigger inside the puppet.

Besides these possibilities the puppet consisted of 32 parts that could also be manipulated.

The robot also had four comparable cause-effect-contingencies, that is:

- a buzzing sound could be made by pressing the nose,
- the eyes could be lit up by pressing the ears,
- the mouth could be opened and closed by pressing the head,
- and three hairs could be made to spring up by pushing them into specific holes in the head.

The robot could be taken apart into 21 different wooden blocks of various shape and colour, and three plastic cylinders. The blocks could be connected by metal pins and combined to make something different, for example, a boat, a car or an aeroplane. Some metal pins could be bent and thus the robot could be manipulated in the same way as the puppet. Some extra ways of manipulating were possible when the robot was taken apart.

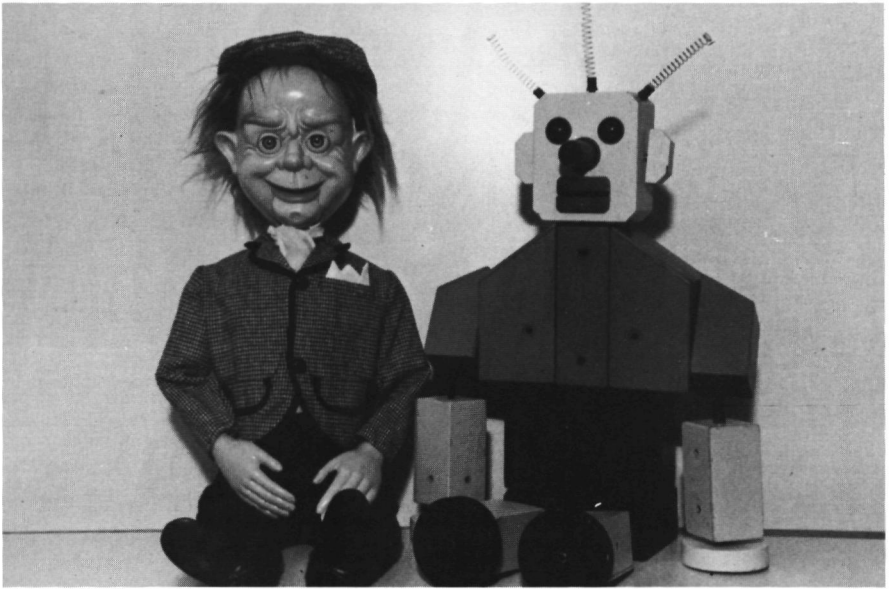


Figure 3.1
The play objects

Design

To guard against the possibility of an order effect, involving the presentation of the objects, the subjects were divided in two groups that were matched on age and gender. Each group was assigned to a different condition. In each condition the children were invited to play twice. However, in condition A the subjects were confronted with the puppet in the first play session and with the robot in the second play session, while the subjects in condition B received the robot in the first session and the puppet in the second session. The play sessions took place over two consecutive weeks. Both sessions consisted of 5 different episodes, which took place according to the following scheme:

1. game with experimenter
2. play with object (waiting room situation)
3. solitary game with rules
4. play with object (waiting room situation)
5. solitary game with rules

The games in the play sessions varied depending on the type of play material, as table 3.1 shows.

Table 3.1
The Sequence of Games and Confrontations with the Play Objects in the Two Conditions

	First session	Second session
Condition A (n = 47)	Labyrinth game	Pisa game
	Play with puppet	Play with robot
	Dart game	Shooting game
	Play with puppet	Play with robot
	Dart game	Shooting game
Condition B (n = 47)	Pisa game	Labyrinth game
	Play with robot	Play with puppet
	Shooting game	Dart game
	Play with robot	Play with puppet
	Shooting game	Dart game

The labyrinth game consisted of a labyrinth of holes through which the child had to move a marble in cooperation with the experimenter. In the dart game the child could obtain a score by hitting the board with a dart from various distances; the larger the distance between the player and the board, the higher the score that was obtained.

Instead of the labyrinth game a game called Pisa was played with the experimenter in the other play session. In this game the child and the experimenter had to place as much puppets as possible on a tower, in such a way that the tower stayed in balance. Instead of the dart game a shooting game was played in which the child had to shoot down plastic bottles with a toy gun from variable distances. Scores were obtained in a similar way to dartgame.

Procedure

The study took place in a classroom of the children's elementary school, which was equipped for the study as shown in figure 3.2. When the child entered the classroom the experimenter told her/him that they were going to play some games because she

wanted to know how children play. She also told the child that some of these games were to be videotaped.

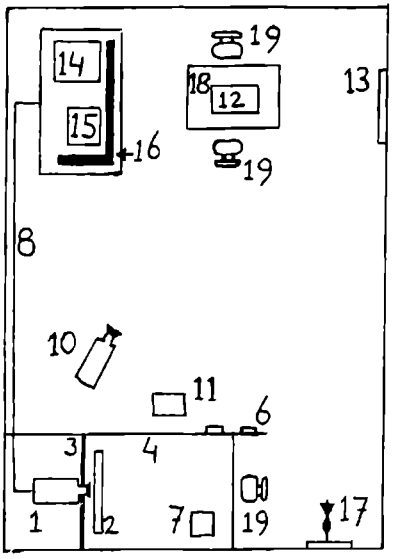
One of the conditions for evoking play behavior is that the child feels at ease. However, this would not be the case when the child knew that his/her behavior was being observed. Therefore the child's play behavior was inconspicuously videotaped during a waiting room situation in episodes 2 and 4. In order to create such a waiting room situation the experimenter invited the child to play the other games (episodes 1, 3 and 5) and pretended to videotape these games in order to suggest that these games were the ones that the study was all about.

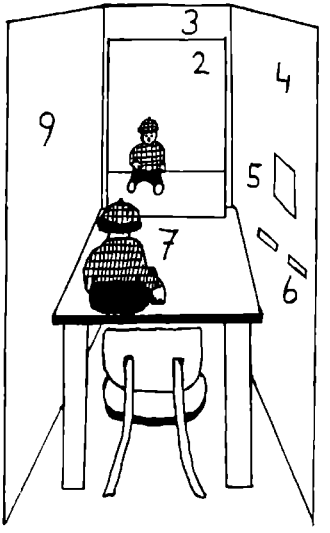
First the child was invited to play a game together with the experimenter (episode 1). By playing this game the child could get used to the experimenter and the situation. After this game was finished, the child was asked to wait behind a screen (see figure 3.2), in the so-called waiting room (episode 2) while the experimenter was preparing the other, solitary game. Behind the screen the child was sitting at a table in front of a one-way screen behind which a video camera was hidden (see figure 3.2). One of the play objects was placed on this table and the child was told that, if (s)he wanted to, (s)he was permitted to play with the object while waiting, in order not to get bored. There were two slots in the screen behind which the child was waiting, so the child could see what the experimenter was doing, but the experimenter couldn't see what the child was doing. This was also done in order to make the child feel at ease.

The child was left with the play object for 5 minutes in the case of the puppet and for 7.5 minutes in the case of the robot. The confrontations with the robot lasted longer because the robot provided the children with more ways to play (constructive play was also possible), as was explained earlier.

Next the child was invited to play the solitary game (episode 3) that was prepared while (s)he had been waiting. When this game was finished the child was asked to wait for another 5 or 7.5 minutes (episode 4), while the experimenter was preparing the second part of the solitary game. This was the second part of the confrontation with the object. The session as a whole ended when the second solitary game (episode 5) was finished.

One week later the children were invited into the classroom again. The same procedure was used as during the first session although the games that were played with the children, differed slightly. In the waiting room the second play object awaited the children.





1. hidden camera
2. one-way screen
3. curtain
4. wooden screen (3 x 2m)
5. Sheet with instruction saying "you may play with the puppet; don't smash or throw it; wait until I call you."
6. peeping slots
7. the puppet
8. wires
9. wall
10. fake camera
11. light
12. labyrinth game
13. door
14. video recorder
15. monitor
16. screen
17. dartboard and darts
18. table
19. chair

Figure 3.2
The experimental situation and equipment

The observation categories

The child's acting on the play objects was coded every second according to mutually exclusive categories. Four of these categories, coded in this study as SM, CM, Sym or Con, refer to types of play behavior as defined by Piaget (1951). Chapter 2 explained why these categories were chosen. For three of these categories it was also scored whether this was a new play action or whether a former action was being repeated.

Since SM implies repetitive acting there is no such extra category for repetitive SM. This leaves us with seven different play categories. It should be noted that both categories referring to constructive play can only be scored during the confrontation with the robot, since the puppet does not provide the possibility to play constructively.

The other, non-play behaviors have been classified into five extra, separate categories, which are also mutually exclusive. The most important non-play category is exploration, which is often confused with play and should therefore be carefully distinguished from the play categories. Besides the play and exploration categories (which are all focused on the play objects), two other behaviors that were directed at the play-objects were also distinguished; handling and looking at the objects. These more refined descriptions of the different behaviors which are all directed at the objects made it easier to distinguish play behavior reliably from non-play behavior. In order to make the categories exhaustive, two other types of behavior were added to the categorisation, which were both not focused on the play objects: behaviors focused on the environment and behaviors focused on the child him/herself.

Table 3.2
The Observation Categories

The play categories		
-SM.	simple manipulative practice play	Repeating actions for the sake of pleasure for example· repeatingly lighting up the nose or lifting up a leg.
-CM:	combinatorial manipulative practice play	Combining actions and/or elements of the play objects for the sake of pleasure for example. opening the puppet's mouth and eyes at exactly the same moment or bringing the puppet's legs to its belly
-CMR:	repeated combinatorial manipulative play	Like CM, but scored when earlier made combinations are repeated.
-Sym	symbolic play	Making objects, actions and/or persons represent other absent objects and/or persons For example· pretending that the puppet is talking or walking.
-SymR:	repeated symbolic play	Like Sym but only scored when earlier made representations are repeated
-Con:	constructive play	Material is combined in order to make it represent something else, for example: building a car or a boat
-ConR·	repeated constructive play	Like Con, but only scored when earlier made constructions are repeated or when a combination made that was already in place when the robot was offered.
The non-play categories		
-Exp:	exploration	Looking at, touching and/or manipulating the play object, or parts of it, in order to find out how it works
-Ha.	handling	Handling the objects and/or parts of it without any specific intention.
-Lo·	looking	Looking or staring at the object in a non-explorative way.
-Env	environment	Looking at, touching or manipulating the environment.
-Se:	self	The subject is only interested in and/or busy with him/herself

The videotapes were scored by seven different observers; six psychology students and the experimenter. The students were trained by the experimenter, and this process involved scoring some "training tapes" until Cohen's kappa (representing the agreement

between the students' observations and the experimenter's) was above .80. The videotaped play sessions were divided, but scored when earlier made randomly among the observers. A fourth of all sessions, that is, 8 for each trained observer (4 with the puppet and 4 with the robot) were scored double, in order to determine the inter-rater reliability. The second observer (the experimenter) scored the sessions independently of the first observer. Cohen's kappa was computed for each individual double-scored play session. This was done for the session as a whole as well as for the specific play categories. In order to check whether the contrast between exploring a car or tion and play could indeed reliably be made, Cohen's kappa was also computed for exploration. The values of Cohen's kappa for these observations were divided into different categories as distinguished by Popping (1983), (see table 3.3).

Table 3.3
The Values of Cohen's Kappa Arranged According to Popping's Categories (n = 24)

	Fair (K = .21-.40)		Moderate (K = .41-.60)		Substantial (K = .61-.80)		Almost perfect (K = .81-1.00)	
	Puppet	*Robot*	*Puppet*	*Robot*	*Puppet*	*Robot*	*Puppet*	*Robot*
Exp	-	-	-	-	8	15	14	7
SM	2	-	4	4	6	9	2	4
CM	-	-	-	-	9	10	9	11
CMR	-	-	-	-	3	7	12	13
Sym	-	-	-	-	3	1	7	-
SymR	-	-	-	-	-	-	-	-
Con		-		-		1		3
ConR		-		-		1		4
Total	-	-	-	-	8	11	16	9

Table 3.3 shows that all play behaviors that appeared during the 48 double-scored play sessions (the puppet and robot session for each subject) were reliably classified into the different play categories by the independent observers, with the exception of only a few events of simple manipulative play (SM). Exploration was also classified reliably. It should be noted, however, that in a few of the sessions, for some play types Cohen's kappa values of .00 or 1.00 were found. Further inspection of these extreme values showed that they referred to play sessions in which this type of play occurred very briefly, that is, it lasted less than 10 seconds. It was difficult to code a behavior if it occurred for less than 10 seconds, therefore the occurrence of a specific type of play was only recorded when it lasted longer than 10 seconds.

The measures for play

The quantity and quality of play were originally determined by two measures. Quantity of play was expressed by the *occurrence* of play and by the *amount of time played*. Quality was expressed by the *diversity* of the types of play and the *developmental level* of the play behavior.

The first measure of quantity is *occurrence* of play and this indicates whether or not the subject showed play behavior during the session. As mentioned in the previous paragraph, occurrence of play could only be scored reliably when play occurred longer than 10 seconds. An occurrence score of 1 was given to all children who showed at least 10 seconds of play. This score was determined for play in general, irrespective of play category, as well as for each type of play. The score can thus assume a value of 1 or a value of 0. The second measure of quantity reflects the *amount of time played*. It is expressed by the number of seconds the child played with the play object during the observation period and ranges from 0 to 600 for the puppet and from 0 to 900 for the robot. This score could also be used for play in general as well as for the specific types of play. To make both scores comparable, percentages of the proportion of time played during the whole of the session were also computed.

The first score for quality is the *diversity* of the children's play. It refers to the number of different types of play shown by the child during the confrontation with the play object. Since the puppet provides the child to show simple manipulative play, combinatorial manipulative play and symbolic play, this score may range from 0 to 3 for acting on the puppet. The robot also provides with the possibility to play constructively and thus the score may range from 0 to 4 for acting on the robot. The second score refers to the *developmental level* of the children's play. Only the highest level of play (that is, developing later in the ontogenesis) that occurs during the session, is scored. Since according to the Piagetian theory (1951), every type of play refers to a different developmental level, this score may also range from 0 to 3 for the puppet and from 0 to 4 for the robot.

The two quality scores however, were found to be highly related (Pearson's $r = .88$, $p = .00$). Statistical analyses led to the same results. Therefore only the score referring to the different types of play was used in this study. This score was preferred because its level of measurement makes parametric analyses possible.

Results

First it was examined whether there was an effect for order of presentation of the objects. No effect was found for the occurrence (chi-square = 1.69, df = 1, p < .01), the quantity (t = 1.19, df = 93, p = .30) or the quality of play (t = 1.06; df = 93; p = .30). There was also no effect for order of presentation found for the occurrence and quantity of the specific types of play, with an exception for simple manipulative play (t = -2.02, df = 93, p = .05). Inspection of the means show that children play less in a simple manipulative way with the object that is presented first.

Object-dependency

Occurrence of play. Table 3.4 shows whether the *occurrence* of play was influenced by the type of play material. It presents the occurrence scores themselves as well as the chi-square values for the differences between these scores.

Table 3.4
The Occurrence of Play with Each Object Respectively and Chi-square for the Differences in Occurrence of Play with Both Objects (N = 94)

	SM	CM[a]	Sym[a]	Con[a]	General play
Puppet	57	81	40	-	86
Robot	79	92	9	37	92
chi-square[b]	12.87*	12.16*	26.53*	-	3.06

* p < .01
[a] CM, Sym and Con refer to CM and/or CMR, Sym and/or SymR and Con and/or ConR respectively
[b] df = 1

Table 3.4 shows that the occurrence of simple manipulative play (SM) and the occurrence of combinational manipulative play (CM) were significantly lower during the presentation of the puppet than of the robot, and that the occurrence of symbolic play (Sym) was significantly higher when the puppet was presented than when the robot was presented. However, there was no difference in the occurrence of play with the puppet as compared to the robot for play in general. A loglineair analysis was also conducted in order to search for age and gender differences but no significant effects were found for gender or age for either object.

Amount of play. Table 3.5 presents the mean number of seconds played with both objects for the sample as a whole, as well as the ranges and standard deviations.

Table 3.5
Descriptive Statistics
for Both Objects Showing the Number of Seconds Spent Playing (N = 94)

	Puppet				*Robot*			
Type of play	M	SD	Range	%[a]	M	SD	Range	%[a]
SM	40.9	48.6	0-234	6.8	74.2	64.4	0-312	8.3
CM	99.9	72.5	0-351	21.9	287.0	178.6	0-693	41.0
Sym	37.9	55.4	0-466	6.2	5.1	17.1	0-218	0.6
Con	-	-	-	-	46.0	56.5	0-387	6.0
General play	178.7	124.5	0-495	29.8	412.3	170.7	0-696	47.4

[a] The percentages refer to the sum of the percentages for each individual subject (the so-called ipsative scores), which represent the proportion of time spent playing from the total observation time.

Table 3.5 shows that more time was spent playing with the robot than with the puppet with an exception for symbolic play (Sym) which was more elicited by the puppet. To establish whether these differences were significant, a 2(object) x 3(age) x 2(gender) MANOVA for repeated measures was conducted on the percentages of time played with the objects.

Table 3.5a
Results of the MANOVA for Repeated Measures on the Percentages of Time Played (N = 94)

Independent variable	Multivariate F	df	p	Dependent variable	Univariate F	df	p
Main effects							
object	27.45	3,86	<.01	SM	2.11	1,88	n.s
				CM	63.55	1,88	<.01[a]
				Sym	22.33	1,88	<.01[b]
age	2.05	6,174	<.10	SM	0.68	2,88	n.s
				CM	2.02	2,88	n.s
				Sym	3.51	2,88	<.05[c]
gender	0.15	3,86	n.s.	SM	0.09	1,88	n.s
				CM	0.29	1,88	n.s
				Sym	0.06	1,88	n.s
First-order interaction							
object by age	2.11	6,174	<.05	SM	0.78	2,88	n.s
				CM	0.72	2,88	n.s
				Sym	5.08	2,88	<.01[d]
object by gender	3.40	3,86	<.05	SM	10.33	1,88	<.01[e]
				CM	0.01	1,88	n.s
				Sym	0.00	1,88	n.s
age by gender	0.31	6,174	n.s	SM	0.58	2,88	n.s
				CM	0.22	2,88	n.s
				Sym	0.13	2,88	n.s
Second-order interaction							
object by gender by age	0.56	6,174	n.s	SM	1.52	2,88	n.s
				CM	0.07	2,88	n.s
				Sym	0.11	2,88	n.s

[a] more CM played with robot than puppet
[b] more Sym played with puppet than robot
[c] less Sym played by 11-year-olds than 9/10-year-olds
[d] less Sym played with puppet by 11-year-olds than 9/10-year-olds
[e] more SM played with robot by girls

Two main effects were found, one for object and one for age. Regarding the effect for object, table 3.5a shows that the differences were significant for the amount of combinatorial manipulative play (CM) and the amount of symbolic play (Sym). Table 3.5 also shows that these differences indicate that for CM more time was spent playing with the robot than with the puppet. The amount of symbolic play appeared to be higher with the puppet than with the robot. The main effect for age referred to symbolic play, where an inspection of means showed that the amount of symbolic play for the 11-year-olds was less than that of the other age groups.

Apart from the aforementioned effects some first-order interaction effects were also found between object and the subjects' age and gender. A significant interaction was found between gender and object for the amount of simple manipulative play, and between age and object for the amount of symbolic play. An ANOVA was conducted for each independent object in order to find out the nature of this interaction. The gender difference was found for the amount of simple manipulative play ($F=6.78$, $df=1$, $p=.01$) but only for the robot. The means show that girls exhibit more simple manipulative play with the robot than the boys did. The effect for age was found for symbolic play with the puppet only ($F=4.41$, $df=2$, $p=.02$). Inspection of the means showed that the age difference found for symbolic play implies that the 11-year-olds spent less time playing symbolically with the puppet than the other age groups did.

Since constructive play was impossible with the puppet this type of play was not included in the analyses. The total amount of play with the robot rises, however, with the inclusion of constructive play. Therefore an ANOVA for repeated measures over the amounts of play in general was conducted for both objects separately. It resulted in a significant main effect for object ($F(1,88)=208.88$, $p<.01$), meaning that more time was spent playing with the robot. No other significant main or interaction-effects were found.

Quality of play. A 2(object) x 3(age) x 2(gender) ANOVA for repeated measures was conducted in order to find out whether the *quality* of the subjects' play was influenced by the play object. Since the scores for quality ranged from 0 to 4 for the robot but only from 0 to 3 for the puppet a score of 4 for the robot was recorded as a score of 3. The other sores remained the same. The ANOVA showed a significant difference between the number of different types of play with the puppet and the number of types of play with the robot ($F(1,88)=20.94$, $p<.01$). An inspection of means showed that the number of types of play was significantly higher for the robot. An interaction effect between age and object was found as well ($F(2,88)=3.71$, $p<.05$). A univariate analysis and inspection of means showed that the quality of play was significantly lower for the eleven-year-olds, but only for play with the puppet ($F=4.7$; $df=2$; $p=.01$).

Overall, it can be concluded that the occurrence of play and the amount of time played (with an exception for simple manipulative play) were both higher when the robot was presented. However, the robot was not very effective in evoking symbolic play. The quality of play was also found to be higher when the robot was presented. Furthermore, age differences were found in the amount of symbolic play with the puppet, meaning that the eleven-year-olds showed less symbolic play than the other age groups. There were also age differences found in the quality of play with the puppet; the play of eleven-year-olds was of lower quality than the play of the other age groups. Finally, gender differences were found in the amount of simple manipulative play with the robot; girls played more with the robot than boys.

The Consistency of Play

The occurrence of play. In order to determine whether the occurrence of play was consistent over the two situations (confrontation with robot and puppet) it was first calculated how many subjects obtained the same occurrence score in both situations and how many did not. Therefore, it was examined for each individual subject whether play did or did not occur with the puppet and with the robot respectively, and whether the occurrence or non-occurrence of play was the same in both sessions. This was done for each specific type of play as well as for play in general. Table 3.6. depicts the number of subjects who were consistent in the occurrence of play over both sessions (**printed boldly**) and the number of subjects who played in one session but did not in the other (*printed italic*).

Table 3.6
The Number of Players and Non-players with Each Object (N = 94)

Occurrence of play with robot	Occurrence of play with puppet		
	Play	No play	Total
SM			
Play	**49**	*30*	79[a]
No play	*8*	**7**	15
Total	57[b]	37	94
CM			
Play	**81**	*11*	92[a]
No play	*0*	**2**	2
Total	81[b]	13	94
Sym			
Sym	**5**	*4*	9[a]
No sym	*35*	**50**	85
Total	40[b]	54	94
Play in general			
Play	**86**	*6*	92[a]
No play	*0*	**2**	2
Total	86[b]	8	94

[a] Number of players with the robot, irrespective of the occurrence of play with the puppet
[b] Number of players with the puppet, irrespective of the occurrence of play with the robot

The occurrence of play in general (phi = .57, p = .05) was found to be consistent over the play sessions, so was the occurrence of simple manipulative play (phi = .21, p = .05) and combinatorial manipulative play (phi = .45, p = .00). However, the occurrence of

symbolic play was not found to be consistent (phi = .12, p = .28).

In order to find out the robustness of these results the same coefficients were computed for boys and girls separately as well as the different age groups (see table 3.6a).

Table 3.6a
Phi-Contingency-Coefficient for the Occurrence of Play with Both Objects in the Different Subsamples (N = 94)

	Boys n = 47	Girls n = 47	9-year-olds n = 31	10-year-olds n = 32	11-year-olds n = 31
SM	.25	.11	.14	.16	.48**
CM	.39**	.47**	.56**	.42**	.48**
Sym	.02	.20	.02	.17	.17
Total	.43**	.69**	.98**	.56**	.60**

* p < .05 ** p < .01

The significant relationship between the occurrence of play in general across the different sessions is very robust. The same can also be concluded for combinatorial manipulative play. However, a significant coefficient for simple manipulative play was only found for the 11-year-olds and is therefore not robust.

Amount of play. In order to determine the consistency of the amount of play over the sessions, table 3.7 presents the Pearson correlation coefficients for the amounts of play in both sessions, for play in general as well as for each type of play.

Table 3.7
Pearson Correlations between the Number of Seconds Played with Each Object (N = 94)

	Play with robot				
	SM	CM	Sym	Con	Total
Play with puppet					
SM	-.03	.11	-.04	.14	.16
CM	-.04	.45**	-.06	.16	.47**
Sym	.09	.03	.45**	.06	.10
Total	.03	.34**	.24*	.17	.43**

* p < .05 ** p < .01

This table shows that the total amount of time played in one session was significantly related to the total amount of time played in the other session. The same can be concluded for combinatorial manipulative play and for symbolic play. The significant correlation between the amounts of symbolic play in both sessions is rather unexpected considering the results presented in table 3.6, which showed us that only 50% of the children had the same occurrence score in both confrontations. We therefore inspected the plot made of this correlation and found that this high correlation was created by the extreme scores of one subject. Deleting this score caused Pearson's coefficient to drop to a value of .05, indicating that the correlation is not robust.

Table 3.7a shows the same correlations as depicted in table 3.7. They were computed for girls and boys separately and for the specific age groups. However, in table 3.7a only the coefficients from the correlations between amounts of the same type of play with both objects are presented.

Table 3.7a
Pearson Correlations between Play with Puppet and Robot across Age and Gender for Each Play Category (N = 94)

	$r_{smpup\ smrob}$[a]	$r_{cmpup\ cmrob}$[a]	$r_{sympup\ symrob}$[a]	$r_{totpup\ totrob}$[a]
Girls ($n = 47$)	.13	.53**	.58**	.51**
Boys ($n = 47$)	-.07	.39**	.06	.32*
9-year ($n = 31$)	-.15	.44*	.81*	.39*
10-year ($n = 32$)	-.03	.56**	-.01	.63**
11-year ($n = 31$)	.10	.37*	.25	.26

* $p < .05$ ** $p < .01$
[a] refers to the Pearson correlation between the amount of play with the puppet (SMpup, CMpup, Sympup and Totpup respectively) and the amount of play with the robot (SMrob, CMrob, Symrob, Totrob)

The correlation between the amounts of symbolic play across the sessions not robust. This may have been due to the extreme score of one 9-year-old girl. However, when this score is deleted the correlation coefficient for the 9-year-olds drops to a value of .04, and to a value of .26 for the girls. Nevertheless, the significant correlations between the amounts of combinatorial play and the total amounts of play can be considered robust.

Quality of play. In order to determine whether the *quality* of the children's play was consistent over the different sessions, Pearson correlations were computed for the amount of play types scored for play with the puppet and the robot. The correlation coefficient had a value of .39 ($p < .01$). Pearson correlations were also computed within the different gender and age groups and are shown in table 3.8.

Table 3.8
Pearson Correlations Between the Quality of Play with the Different Objects in the Specific Age and Gender Groups (N = 94)

	$r_{pup\ rob}$
Girls (n = 47)	.33*
Boys (n = 47)	.42**
9-year-olds (n = 31)	.06
10-year-olds (n = 32)	.33*
11-year-olds (n = 31)	.60**

* $p < .05$ ** $p < .01$

The correlation coefficients were found to be robust over all gender and age groups except for 9-year-olds.

On viewing these results, it can be concluded that the occurrence and amount of play in general, were consistent over the different sessions and that since the same results were found in the specific gender and age groups, these results were very robust. Similar conclusions can be drawn for combinatorial manipulative play, but the occurrence and amount of simple manipulative and symbolic play were not consistent. However, the quality of the children's play was consistent over the different sessions, but only in the older age groups.

Conclusions and discussion

This study shows that several aspects of children's play behavior may indeed be influenced by the type of available play material and are rather consistent across situations when play in general is concerned. For the more specific types of play this consistency is however, not always found. This may be due to the fact that the occurrence, and amount of each individual type of play can be influenced differently by the available play material.

Let us start by discussing the results with reference to the *object-dependency* of the different measures of children's play. When we restrict ourselves to play in general, this study shows that the robot is more attractive for children aged 9 to 12 than the puppet. Specifically the children played longer with the robot and their play was of a higher quality. The occurrence of play was not influenced by the type of play material. One explanation for these results could be the fact that the children were allowed to play longer with the robot than with the puppet. The extra minutes they were left alone with the robot, may have prompted the children to decide to play after all. However, the

same results were found by looking only at the first 10 minutes of play with the robot, and thus omitting the extra time. With reference to the quality of play it was also found that the eleven-year-olds showed less diversity in the types of play with the puppet than the other age groups. This variance in the diversity of play types amongst the different age groups was not found for the robot. Considering the fact that the robot was not very evocative for symbolic play, it seems that symbolic play may be the varying play type that caused the variability in the quality of play with the puppet.

So we may conclude for play in general that the robot leads to a higher quantity and a higher quality of play, especially in the oldest age groups. Former studies have already found that specific material may influence children's play (Pulaski, 1970, 1973; Robinson & Jackson, 1987). In order to gain better insights into the influence of play material on children's play, it is important to focus on the results for the specific types of play.

For the occurrence and the amount of *combinatorial manipulative play* the same results were found as for play in general. *Simple manipulative play* however, was not found to be influenced by the type of play object. Although a gender difference was found in the amount of simple manipulative play with the robot, that is; girls played longer in a simple manipulative way than boys. With reference to *symbolic play* it was found that the puppet was more attractive than the robot. It may be that the robot tended to evoke constructive play rather than symbolic play. It was also found that symbolic play is rather sensitive to age differences, in that eleven-year-old children spent less time playing in a symbolic way than the other age groups. Thus, the finding that the robot does not evoke symbolic play may explain why these age differences are only found in play with the puppet. In summary, this study shows that the type of play material may have a different influence on the amount and occurrence of each specific type of play.

With reference to the *consistency* of the children's playfulness the study shows that regardless of the influence of specific play material, children are rather consistent in their tendency to play and in the amount and quality of their play in general. Children who played with one of the objects nearly always did so with the other one. Less than 5% of the children acted differently in both situations. It was also found that, although the robot held the children's attention longer (see table 3.5), the total amount of play with the puppet was significantly related to the amount of play with the robot (table 3.7). The correlation coefficients for both the occurrence and the amount were also found to be significant in the different subsamples (table 3.7a), which shows that these relationships are rather robust. The same results were found for the quality of the children's play. It appears that children who demonstrate many different ways of playing, do so independent of the possibilities provided by the material. However, different conclusions should be drawn across age groups as table 3.8 shows. The fact that the quality of play only differed among the age groups for play with the puppet may explain why no relationship was found in the age groups where the quality of play with the puppet was high and thus variable. It seems that the influence of the play

object on the occurrence of symbolic play may lead to inconsistencies in the quality of play of the younger children. In summary it can be concluded that play in general can be considered consistent across various situations where different play material is available, with an exception for the quality of play of younger children.

Again, different results were found for the specific types of play. The only type of play that shows the same results as play in general is *combinatorial manipulative play*; both the occurrence and the amount are found to be consistent. These results were found for all different subsamples and may therefore be considered robust. However, for *simple manipulative play* different results were found. Neither the occurrence nor the amount were found to be consistent over the different situations. The effect for order showing that children tended to play more in a simple manipulative way during the last session may be an explanation for the inconsistency in the amount of time spent engaging in this type of play. Since such an effect for order was not found for the occurrence, the reason for this inconsistency should be investigated further. The occurrence of *symbolic play* was also found to be inconsistent and the results in table 3.6, which shows that the amount of symbolic play is independent of a situation, was not found to be particularly robust. The variability of the coefficients in the different subsamples as well as the inconsistency of the occurrence of symbolic play may be due to the fact that the robot is not very evocative for symbolic play; only 8 children played symbolically with both objects. The fact that symbolic play is easily influenced by the available play material was already found in the studies of Pulaski (1970, 1973) and Robinson and Jackson (1987). It can be questioned, however, whether this type of play is consistent if (in contrast with the present study) both play objects are equally evocative for symbolic play. The same question can be asked with reference to the consistency of *constructive play*. Table 3.6 shows that the amount of constructive play with the robot did not correlate with any other type of play. It can therefore be stated that this is indeed a different type of play, which is also rather popular for children of this age, considering the fact that 37 subjects, (i.e., about 40% of the sample) played constructively. It would be interesting to investigate the consistency of this type of play as well. Play objects that are equally evocative for all types of play are necessary in these investigations in order to obtain more profound insights into the consistency of the specific play types. It seems that such an object should be a combination of the objects used in this study.

Before summarizing the conclusions of this study, we would like to draw some attention to a type of behavior that is often confused with play behavior: exploration. Some theorists mentioned that it is very hard to make a strict distinction between play and exploration (Weisler and McCall, 1976; Wohlwill, 1984). However, as Cohen's kappa showed (table 3.3), this type of behavior could be reliably distinguished from play in the present study. Although not presented in this manuscript, the same analyses were conducted for exploration as for the specific types of play. It was found that the amount of exploration was not related to any of the types of play, or to play in general, which can be interpreted as exploration being a different kind of behavior. The results for exploration were quite similar to the results found for simple manipulative play, in that a similar effect for order was found and that exploration was not found to be

consistent over the different sessions. This may explain why in previous studies it may have been easily confused with play .

In summary, this study shows that play behavior is at the same time both consistent and dependent of available play material. Play in general was found to be rather consistent over the situations although some unexplained variance between both situations remained as well. Further studies should investigate whether it was the difference in the play material that was responsible for this variance or whether other variables may influence the occurrence, amount and quality of play as well. The present study shows that play is indeed influenced by the type of play material available, and each specific type of play is found to be influenced in its own way. It should therefore be investigated more precisely how each individual type of play is influenced by specific play material and whether and how the availability of this specific play material may influence the consistency of the occurrence and the amount of the specific types of play. We suggest that it may be a good strategy to investigate the solitary play of children in more situations than in the present study, in which the available play material varies systematically in order to obtain more insights into the consistency of play behavior. This kind of research provides more precise insights into how one may control the influence of specific play material on play behavior. Further research is also necessary to find out whether the results of this study can be generalised to other age groups and to non-solitary play sessions.

With reference to the assessment of play, it should be realised that although observing play behavior may seem to be a straightforward procedure for assessing characteristics of play, one should be aware of the fact that certain factors may influence the quantity and quality of the play behavior. In many studies the observed play behaviors are considered a manifestation of the subjects' general playfulness following the assumption that play behavior stems from a general relatively stable disposition to play. It may be questioned, however, whether a person's general disposition to play can indeed be validly deduced from his/her play behavior. As long as the questions referring to the moderating factors of play behavior remain unanswered, one should be careful to use the characteristics of a person's play behavior as a measure for his/her general playfulness. It is therefore concluded that the consistency of play behavior, as well as the moderating factors that may influence the quantity and quality of play behavior, should be investigated more extensively in order to determine whether a reliable assessment of a child's general playfulness can be deduced from his/her play behavior in a specific situation.

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PART TWO

Play, creativity, leisure and parental characteristics

Introduction to Part Two

In the next two chapters play will be related to four different variables: creativity, leisure, parental attitudes towards play and parental behaviors on play. Before the studies concerning the relationships between play and these variables are described in the following chapters, we will first explain why these particular variables were selected and how we assume them to be related to each other.

Creativity was chosen as the first variable to relate to play because acting creatively is invariably associated (and often confused) with play from a theoretical and empirical point of view. The conceptual similarities between both variables may help to explain this association. Kogan (1983), who prefers to speak of divergent thinking when referring to creativity, described the similarity between both concepts as follows: "In its higher forms, both divergent thinking and play entail cognition and behavior that extend or transform the central purpose of stimulus objects." (p.639) However, in the many studies that were conducted in order to examine the relationship between play and creativity, it was found that both concepts refer to different behaviors and that these behaviors are not always found to be related to each other. In Chapter 4 a review of the findings from these studies will be presented along with the results from our own investigations.

Examples of studies in which the relationship between play and creativity is assumed to be self-evident are the studies of Bishop and Chace (1971) and of Harrington, Block and Block (1987) in which the relationship between children's creativity and parental characteristics was investigated and found to exist. They were explained by the assumption that playfulness was the mediating factor; it was believed that certain parental characteristics enhanced the children's playfulness which in turn enhanced the children's creativity.

In both the relationship between play and creativity and the relationship between creativity and parental styles, a certain playfulness (referred to as a playful attitude by some researchers) is assumed to be the mediating factor. Figure II.1 depicts the relationships that can be assumed on the basis of these empirical studies.

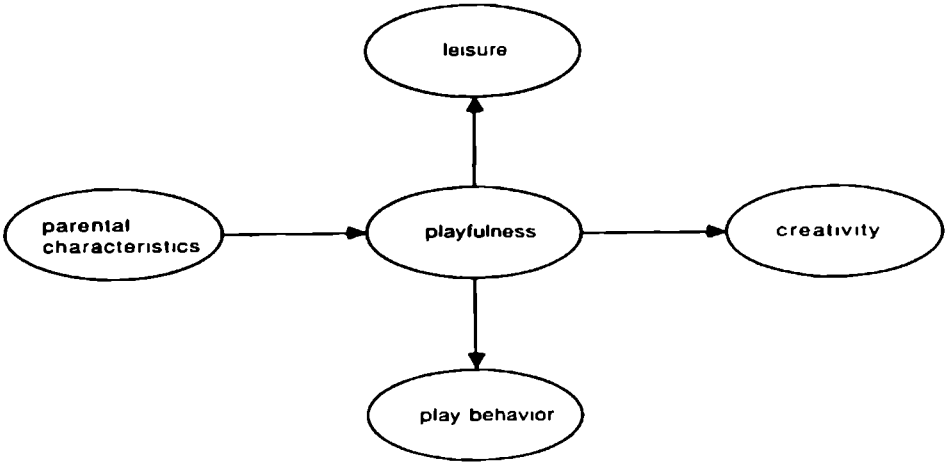

Figure II.1
The Assumed Relationships between Play, Creavity, Leisure and Parental Characteristics

Play behavior is not the only activity in which a general underlying playfulness can become manifest. Leisure is also assumed to be a behavioral manifestation of playfulness, since it resembles play in a number of aspects. For example; it provides a good opportunity for autotelic acting, since during leisure one is free to do want one wants. According to Csikszentmihalyi (1975) autotelic acting (manifest in leisure and play) can lead to a certain "flow"-experience, which can be characterized as follows:

- a merging of action and awareness
- a centring of attention on a limited stimulus field
- a loss of ego or "self-forgetfulness"
- control of one's actions and the environment
- coherent, non-contradictory demands for action and clear feedback
- the absence of external goals or rewards (which in fact, reflects the autotelic nature).

Thus a flow-experience may be considered to be an experience of loosening oneself from reality. In other words, it means that one is playing, since one is being active in an autotelic way within a reframed reality, which is in fact the definition of play that was given in Chapter 2.

Since leisure is a behavioral manifestation of playfulness, which, like play, can be measured directly, it is helpful in the search for the existence of a general underlying playfulness, and therefore included an extra variable in the figure shown above. It is reasoned that if play and leisure are both manifestations of an underlying general playfulness, an empirical relationship between both can be expected (see 3a/b in figure II.2). The next chapters will investigate whether there is an empirical basis to the aforementioned relationships.

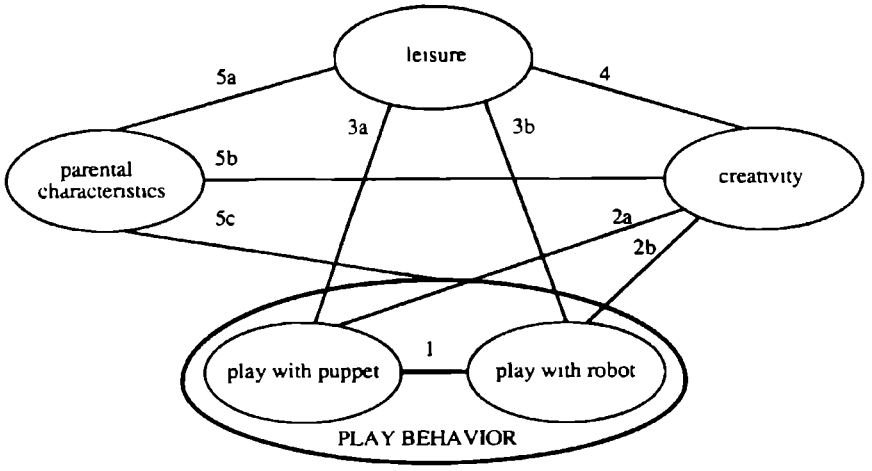

Figure II.2
The Expected Empirical Relationships between the Variables

Figure II.2 depicts all the expected empirical relationships shown in figure II.1. The consistency of play behavior across different situations that was found in Chapter 3, have already provided us with some evidence for the existence of a general playfulness ("1" in figure II.2). Since it is assumed that playfulness will influence children's creativity, significant relationships are expected between creativity and both play behavior ("2" in figure II.2) and leisure ("4"). Furthermore, since play material was found to influence the relationship between play and creativity, separate investigations will be conducted for the puppet and robot ("2a" and "2b"). Finally, it is assumed that parental characteristics may influence children's playfulness, and because the playfulness is assumed to influence the other three variables, relationships between parental characteristics and all the other variables are expected ("5a/b/c"). Schematically, the following relationships were investigated:

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Chapter 4

Solitary play, creativity and leisure of 9- to 12-year-old children

The relationship between play and creativity has been examined in many studies and most of them have found the existence of a significant relationship (Dansky & Silverman, 1973, 1975; Feitelson & Ross, 1973; Singer & Rummo, 1973; Hutt & Bhavnani, 1976; Lieberman, 1977; Pepler & Ross, 1981; Berretta & Privette, 1990). Nevertheless some questions remain concerning the nature of this relationship (Vandenberg, 1980; Pepler, 1982). The most important question involves the processes underlying the relationship. Pepler (1982) distinguished three different mediating factors that can be used to explain the relationship.

The first explanation is that playing with material makes people aware of the various possible ways of acting on this material, and this knowledge enables them to generate more possible uses (Sutton-Smith, 1968; Dansky & Silverman, 1973).

However, in a later study Dansky and Silverman (1975) found that players were also more creative than non-players when their creativity was measured with material other than the material they had played with before. This made Pepler's first explanation implausible. Therefore, a second one was deduced, which stated that playing makes children develop a certain "playful set". This playful set can be considered to be a certain attitude which makes the subjects more flexible, curious, spontaneous and interested in the creativity task (Pepler, 1982).

A third explanation for the relationship between play and creativity may be that the transition from concrete reality to abstractions of reality is necessary for being creative (Pepler, 1982). This explanation arose since some studies found that symbolic play in particular makes children more creative (Johnson, 1976; Li, 1978), and this type of play is one in which this transition takes place constantly.

The present study has tried to unravel some of the existing ambiguities in the relationship between play and creativity. Pepler's second explanation that is, whether a general playfulness (or playful attitude) is a mediating factor in the relationship between play and creativity, was investigated first. Next, Pepler's third explanation (which assumes that the ability to abstract from reality is a mediating factor) is examined. Since earlier studies (Dansky & Silverman, 1975) have already shown that Pepler's first explanation is implausible, this explanation will not be examined. However, in order to be certain that being acquainted with the material will not be responsible for a relatively high creativity score, the children's creativity will be measured by a test that has no relationship with the play material.

Since most theorists assume an underlying playfulness to be a mediating factor in the relationship between play and creativity (see figure I.1), Pepler's second explanation is tested most extensively. As this playfulness cannot be measured directly, three different

relationships are investigated; the relationship between play and creativity, the relationship between play and leisure and the relationship between leisure and creativity. All three relationships need to be significant in order to make it plausible that an underlying playfulness is the mediating factor in the relationship between play and creativity. First, it will be investigated whether a significant relationship can indeed be found between play and creativity. Secondly the relationship between play and leisure will be examined in order to find evidence for the existence of an underlying playfulness. Leisure was found to resemble play in a number of ways (Czikszentmihalyi, 1975; Reijnaerts & Rost, 1987) and can therefore be interpreted as a form of adult play. Since both play behavior and leisure are assumed to be behavioral manifestations of playfulness, a significant relationship between them can be seen as evidence for the existence of an underlying playfulness. If this playfulness is indeed a mediating factor in the relationship between play and creativity, the children's leisure should be related to their creativity as well. Therefore, the relationship between creativity and leisure is the third relationship that will be examined in order to test Pepler's second explanation. Only if all three relationships are significant can we infer that an underlying playfulness is the mediating factor in the relationship between play and creativity.

The plausibility of Pepler's third explanation will also be tested. Therefore the relationship between creativity and symbolic play will be examined. If it is found that creativity is related to symbolic play only, and no relationship is found between creativity and leisure, it is plausible that the ability to abstract from the concrete reality is a mediating mechanism in relationship between play and creativity.

A completely different point of view on the relationship between play and creativity is that the relationships (as found in the studies mentioned at the beginning of the chapter) are in fact the result of certain artefacts. From their study, Smith and Whitney (1987) concluded that it is the tutoring of the experimenter during the creativity sessions rather than the children's play itself, that makes children perform more creatively. Pellegrini (1984) also found this experimenter effect. Another artefact was mentioned by Vandenberg (1980), who concluded that play is not reliably distinguished from exploration in many studies. Thus it is unclear whether it is play or exploration or a combination of the two that is related to creativity. Another factor that may obscure insights into the relationship between play and creativity is the type of play material used in the studies (Pepler, 1982). Pepler and Ross (1981) found that children were more creative when they played with divergent material but no relationship was found when the play material was convergent and could be used in only one way.

In the present study we try to avoid the aforementioned artefacts. Thus, in order to prevent experimenter effect, the children's play behavior is assessed without the presence of the experimenter. Besides play behavior, exploration is also assessed in order to be certain that it is indeed play and not exploration that is related to creativity.To examine how the structure of the available play material may influence the relationship between play and creativity, the children are presented with different types of play material which vary in the degree to which they are divergent.

Method

Subjects

Ninety-six children participated in the study. The children were divided into three age groups: 9-year-old children (M=9 years and 6 months; SD=3.8 months), 10-year-old children (M=10 years and 6 months; SD=3.3 months) and 11-year-old children (M=11 years and 7 months; SD=3.9 months). Each age group consisted of 32 children; 16 boys and 16 girls. The mean each age of the boys was 10 years and 7 months (SD=11.1 months), and the mean age for the girls was 10 years and 5 months (SD=10.6 months). All children were attending a normal Dutch elementary school. A letter was sent to the parents of all 9-to-11-year-old pupils of four schools. In this letter parents were asked whether they and their children were willing to participate in the study. About 25% of the parents and children answered this letter affirmatively. Out of these children 16 boys and 16 girls of each age group were chosen at random. The play behavior of one 9-year-old boy could not be observed because of a technical problem while videotaping his behavior. One 11-year-old girl fell ill during the study, leaving our sample with 94 subjects.

Play material

The children were presented with two different play objects that differ in the degree to which they are divergent. The ventriloquist's puppet is considered to be a convergent object. The puppet cannot easily be used as anything else but a puppet. The other play object, the robot, can be taken apart into different blocks and connecting pins and can therefore be used and/or reconstructed in many different ways. This object can therefore be considered as a divergent play object.

As mentioned in Chapter 3 some unknown possibilities were built into both objects (e.g lighting up the nose by pressing a button inside the puppet). This was done in order to evoke exploration as well as play behavior, which will make it possible to make a clear distinction between play and exploratory behavior.

Procedure

The children's play behavior was observed according to the procedure of Rost (1986), which consists of confronting children with a play object and recording their acting on this object. This confrontation took place twice, in two consecutive weeks; once with the convergent object, which is the same object as used by Rost, and once with the divergent object, that was especially designed for this study.

Both play sessions took place in a classroom of the children's elementary school, which was equipped for the study as shown in figure 3.2. When the child entered the

classroom the experimenter told her/him that they were going to play some games because she wanted to know how children play. She also told the child that some of these games were to be videotaped.

One of the conditions for evoking play behavior is that the child feels at ease. However, this would not be the case if the child knew that his/her behavior was being observed. Therefore the child's play behavior was videotaped inconspicuously during a waiting room situation. In order to create such a waiting room situation the experimenter invited the child to play some other games and pretended to videotape these games in order to suggest that these games were the ones the study was all about.

Consequently both play sessions consisted of 5 different episodes, which took place according to the following scheme:

1. game with experimenter
2. play with object (waiting room situation)
3. solitary game with rules
4. play with object (waiting room situation)
5. solitary game with rules

The first game was played together with the experimenter, so the child could get used to the experimenter and the situation. Different games were played in each session in order to prevent the child from getting bored.

In the so-called waiting room, the child could sit at a table in front of a one-way screen, behind which a video camera was hidden (see figure 3.2). One of the play objects was placed on this table and the child was told that, if (s)he wanted to, (s)he was permitted to play with the object while waiting, in order not to get bored. Meanwhile the experimenter was preparing another game. The waiting room was separated from the classroom by means of a screen with two slots, so the child could see what the experimenter was doing, but the experimenter couldn't see what the child was doing. This was also done in order to make the child feel at ease.

During each play session the child was left alone with the play object twice. Each confrontation with the puppet lasted for 5 minutes. However, with the robot they lasted for 7.5 minutes. The confrontations with the robot were longer because the robot provided the children with more ways to play than the puppet.

One week after the last play session the child was invited into the classroom again. This time the children's creativity was measured by means of the test of Wallach and Kogan (1965). The test was administered for each child individually. After the creativity test had been administered for all children, they were invited into the classroom again, but this time in groups of 20. Then, one of the experimenters demonstrated how to complete a questionnaire about their leisure activities. After the experimenter was certain that all children understood the demonstration, the children were instructed to complete the questionnaire on their own. Two other experimenters were also present during the completion in order to answer any questions.

Measures

Play

The videotapes of the children's confrontation with the play objects were coded every second according to exhaustive and mutually exclusive categories. Four of these categories refer to different types of play as defined by Piaget (1951); one refers to constructive play, one to symbolic play and two refer to practice play. A distinction was made between simple repetitive practice play and practice play in which different parts of the objects were combined. A fifth category refers to exploration while the remaining categories refer to all other possible behavior (see appendix 1).

For both confrontations 25% of the subjects were scored by two independent observers and in order to determine the interrater-reliability a Cohen's kappa was computed which varied from .74 to .93 for the puppet and from .75 to .98 for the robot.

Two different scores for the children's play are used in the present study. The first score reflects the amount or *quantity* of play and is the number of seconds the child plays with the play object during the sessions. It ranges from 0 to 600 for the puppet and from 0 to 900 for the robot. This score can be determined for play in general and for the specific types of play.

The second score reflects the *quality* of play and is the number of different types of play shown by the child during the confrontation with the play object. This score ranges from 0 to 4 for acting on the robot but from 0 to 3 for acting on the puppet, since constructive play was not possible with this object.

Creativity

Children's creativity was assessed by means of two different tests designed by Wallach and Kogan (1965). In analogy with their theory creativity is conceived as a form of divergent thinking, which can be assessed as asking people to find as many alternatives as possible to solve a certain problem. Wallach and Kogan distinguished three different components within creativity: fluency, flexibility and uniqueness. They defined fluency as the number of response-items generated to a task item and flexibility was defined as the number of different categories of response. Uniqueness is measured as the number of unique answers given by the child. Since the flexibility and the fluency component were found to be correlated rather highly in several studies (Kogan, 1983), in the present study only children's fluency and uniqueness (also referred to as originality) will be measured. Wallach and Kogan's original test battery consists of five different independent tests, three verbal tests and two figurative tests. In the present study only one of the verbal tests and one of the figurative tests was administered. This was done because the administration of the entire test battery took so much time that it was very difficult for the children to concentrate and remain motivated. Since all tests were found to be equally reliable, verbal and figurative tests were chosen randomly. In the verbal test the children were asked to name as many things with a certain characteristic as they could (e.g. being round). The verbal test consisted of four different questions, each referring to a different characteristic. In the figurative test the children

were presented with 8 different abstract pictures and asked to mention as many things as possible they thought the picture might represent.

As mentioned above two different measures for creativity were computed; a fluency score and an originality (or uniqueness) score. The fluency score was the sumscore of the total number of answers given by the subject on the individual items. The originality score was the sumscore of all original answers given by the subject on the individual items. An original answer was one that was given by that specific subject only and not by any other subject. The fluency and originality scores were calculated for the verbal test and figurative test separately. Cronbach's alpha was computed in order to determine the internal consistency of these measures. It was found to range from .74 to .93 which shows that the internal consistency of all measures is reliable. Wallach and Kogan (1965) computed Spearman-Brown's index in order to determine the reliability of their measures. We did the same in order to check whether the measures in our study are comparably reliable, and table 4.1 shows that this is indeed the case.

Table 4.1
Reliability Indices for the Creativity Measures (N = 94)

Measure	Spearman-Brown-index in our study	Spearman-Brown-index in W & K-study
Verbal fluency	.71	.75
Figurative fluency	.91	.93
Verbal originality	.54	.51
Figurative originality	.85	.87

Item-total correlations for the individual measures were also computed by Wallach and Kogan (1965). Again we did the same and found our values for correlation coefficients to be comparable to the values of Wallach and Kogan.

Pearson correlations were computed between the different measures for creativity and it was found that both verbal measures were highly related. The same was found for the figurative measures (see table 4.2).

Table 4 2
Pearson Correlations between the Different Creativity-Scores (N = 94)

	Verbal Measures		Figurative Measures	
	Fluency	Originality	Fluency	Originality
Verbal Measures				
Fluency	1 00			
Originality	91*	1 00		
Figurative Measures				
Fluency	49*	43*	1 00	
Originality	51*	49*	93*	1 00

* $p < 01$

It was therefore decided to use the sumscore of both verbal measures as a measure for verbal creativity and to use the sumscore of both figurative measures as a measure for figurative creativity In a later review Kogan (1983) mentioned that in many studies the fluency and the originality measures for older children were found to be highly related This complies with the present findings

Leisure

In this study leisure is conceived as the time during which one is free to do as one wants It is assumed that activities performed during leisure will reflect a person's playful attitude rather directly It was therefore investigated what activities the children perform during their leisure and to what extent they experience these leisure activities as being playful The measures of their leisure were obtained by means of a questionnaire that consisted of 30 items Each item referred to a different leisure activity In a study of De Groot, Nijenkamp & Veldmate (1989) an inventory was made of the most common leisure activities of 9- to 12-year-old Dutch children Out of this inventory the 30 most common leisure activities were selected as the items of our questionnaire Every item consisted of six questions (these questions were identical for each item), leading to six different measures of leisure

The first question asks whether the child ever performed the given leisure activity A "1" was scored when the child did, and a "0" was scored when (s)he did not The *diversity of the leisure activities*, which is our first measure, is the sum of the individual scores on all 30 items and thus ranges from 0 to 30

The aim of the other questions was to determine to what degree the child performed the leisure activities with a playful attitude The second question asks for the motive behind each leisure activity The child could choose between three answers which differed in the degree of intrinsic motivation, since intrinsic motivation is often mentioned to be a characteristic of play The child obtained a high score, when (s)he reported to act with a high degree of intrinsic motivation The score on each item could be 0, 1 or 2 The measure for *intrinsic motivation* is the sumscore of these scores on

the 30 items and ranges from 0 to 60.

The remaining four questions could all be answered by means of a five-point-scale. Three of them also aimed to measure the playfulness in leisure. Two other characteristics of play are, the manifestation of pleasure, and detaching oneself from reality. The last characteristic can be operationalized as the degree to which one can be absorbed by an activity. Therefore the third question asks the child to report the degree to which s/he experiences *pleasure* while performing the leisure activity and the fourth asks to what degree s/he *gets absorbed* by performing the activity. The fifth question asks the child to report the degree to which (s)he thinks the leisure activity *resembles a play activity*. Finally, the sixth and last question is aimed to measure the degree of *satisfaction* derived from the activity. For the last four questions a high score was obtained when the child reported that (s)he experienced much pleasure, absorption, resemblance with play or satisfaction during his/her leisure activities. A low score was obtained when the child reported (s)he did not. The measures for pleasure, absorption, resemblance with play and satisfaction are the sumscores of the scores on the 30 items. These scores therefore range from 30 to 150. The internal consistencies of these measures are computed by means of Cronbach's alpha (see table 4.3).

Table 4.3
Cronbach's Alpha for the Measures of Leisure Activities (N = 94)

Measure*	Cronbach's Alpha
Diversity	.76
Intrinsic motivation	.80
Pleasure	.80
Absorption	.89
Resemblance with play	.87
Satisfaction	.81

* number of items is 30 for all measures

The table shows a high internal consistency for all measures.Next, the intercorrelations of all scores were computed by means of Pearson correlation coefficients. The results are presented in table 4.4.

Table 4.4
Pearson Correlations between the Different Scores Referring to Leisure (N = 94)

	Diversity	Intrinsic motivation	Pleasure	Absorption	Resemblance with play	Satisfaction
Diversity	1.00					
Intr. motivation	.88*	1.00				
Pleasure	.86*	.84*	1.00			
Absorption	.60*	.56*	.68*	1.00		
Resemblance play	.74*	.73*	.79*	.70*	1.00	
Satisfaction	.85*	.83*	.96*	.70*	.80*	1.00

* $p < .01$

It was found that all scores were highly related. A factor-analysis also showed only one factor (Eigenvalue=4.76). However, the score for absorption was less related to the other scores, as table 4.4 shows, and was therefore kept as a separate score. The other scores were summated into one general score for leisure, which is referred to as "leisure in general " and reflects the degree to which leisure activities are experienced as being playful.

Results

First of all, ANOVAs were conducted in order to find out if there were any gender or age differences in the separate measures; no gender or age effects were found in the creativity-measures. However, for the general measure of leisure, a gender effect was found ($F=7.0$, $df=1$, $p<.05$). Inspection of means shows that girls reported to experience their leisure as more playful than boys. A gender effect was also found for the amount of simple practice play, but for the divergent play object only ($F=6.8$, $df=1$, $p<.05$).The means indicate that girls showed more simple practice play with the divergent object than boys. For play with the convergent object an age effect was found for the total amount of play ($F=4.0$, $df=2$, $p<.05$), the amount of symbolic play ($F=4.4$, $df=2$, $p<.05$) and for the quality of play ($F=4.6$, $df=2$, $p<.05$). Inspection of means showed that in all three cases the 11-year-olds showed less play than the other two age groups.

Playfulness as the mediating factor: testing Pepler's second explanation

Play and creativity

In order to examine whether creativity is related to play, Pearson correlation coefficients were computed.

Table 4.5
Pearson Correlations between Play, and Exploration for the Puppet and the Robot on Both Verbal and Figurative Creativity (N = 94)

	Creativity	
Play/Exploration	*Verbal*	*Figurative*
With puppet (convergent object)		
Quantity of exploration	.11	.11
Quantity of play in general	.00	-.18
Quantity of SM[a]	.00	.00
Quantity of CM	.04	-.13
Quantity of Sym	-.00	-.16
Quantity of Con	--[b]	--[b]
Quality of play	.04	.06
With robot (divergent object)		
Quantity of exploration	-.03	.05
Quantity of play in general	.10	-.05
Quantity of SM[a]	.09	-.03
Quantity of CM	-.01	-.04
Quantity of Sym	.09	.02
Quantity of Con	.13	.05
Quality of play	.27*	.14

* $p < .05$

[a] SM refers to simple manipulative play, CM refers to combinatorial manipulative play, Sym refers to symbolic play and Con refers to constructive play.

[b] No correlation coefficient could be calculated since constructive play is not possible with the puppet.

The table shows a significant relationship between verbal creativity and the quality of play with the divergent object. Since the ANOVAs showed gender and age effects for some play measures, the same correlations were computed separately for the different gender and age groups, in order to check for possible age and gender differences in the relationship between creativity, and play and/or exploration. No significant relationships were found in the gender groups, but varying results were found in the different age groups. Significant relationships were only found for play with the divergent object. No significant results were found for the 9-year-olds, while for the 10-year-olds significant relationships were found between verbal creativity and the amount of constructive play ($r = 53$, $p < .01$) and between verbal creativity and the amount of symbolic play ($r = .45$,

$p < .01$). For the eleven-year-olds a significant relationship was found between the figurative creativity and the quality of play ($r = .40$, $p < .05$).

Play and leisure

Pearson correlations were also computed between the play measures and the measures for leisure, in order to check for the existence of an underlying playfulness. Results are presented in table 4.6.

Table 4.6
Pearson Correlations between Play, and Exploration for the Puppet and the Robot on Both Measures for Leisure (N = 94)

	Leisure	
Play/Exploration	*General*	*Absorption*
With puppet (convergent object)		
Quantity of exploration	.13	.14
Quantity of play in general	.13	.20
Quantity of SM[a]	-.04	.08
Quantity of CM	.15	.13
Quantity of Sym	.10	.14
Quantity of Con	--[b]	--[b]
Quality of play	.13	.24**
With robot (divergent object)		
Quantity of exploration	.12	.14
Quantity of play in general	.13	.14
Quantity of SM[a]	.16	.02
Quantity of CM	.00	.05
Quantity of Sym	.04	-.07
Quantity of Con	.11	.12
Quality of play	.13	.13

* $p < .05$
** $p < .01$
[a] SM refers to simple manipulative play, CM refers to combinatorial manipulative play, Sym refers to symbolic play and Con refers to constructive play.
[b] No correlation coefficient could be calculated since constructive play is not possible with the puppet.

A significant relationship was found between the quality of the children's play with the convergent play object and the degree to which they get absorbed by their leisure activities.

The same correlations were computed in the different age and gender groups. No significant relationships were found for girls. For boys, however, many significant relationships were found, as table 4.7 shows.

Table 4.7
Pearson Correlations between Play, and Exploration for the Puppet and the Robot on Both Measures for Leisure for Boys Only (n = 47)

	Leisure	
Play/Exploration	*General*	*Absorption*
With puppet (convergent object)		
Quantity of exploration	.24	.16
Quantity of play in general	.37**	.44**
Quantity of SM[a]	.02	.08
Quantity of CM	.29*	.41**
Quantity of Sym	.38**	.35*
Quantity of Con	--[b]	--[b]
Quality of play	.39**	.41**
With robot (divergent object)		
Quantity of exploration	.26	.23
Quantity of play in general	.22	.28
Quantity of SM[a]	.00	.00
Quantity of CM	.08	.18
Quantity of Sym	-.02	-.07
Quantity of Con	.13	.10
Quality of play	.26	.24

* $p < .05$
** $p < .01$
[a] SM refers to simple manipulative play, CM refers to combinatorial manipulative play, Sym refers to symbolic play and Con refers to constructive play
[b] No correlation coefficient could be calculated since constructive play is not possible with the puppet

Both the quantity and the quality of the boys' play are significantly related, to the degree to which the child's leisure activities are considered to be playful, and to the degree of absorption experienced during leisure. Significant relationships were also

found between both measures for leisure and the amounts of combinatorial practice play and symbolic play. All significant results however, only concern play with the convergent object.

In the specific age groups, no significant relations were found for the 10-year-olds and the 11-year-olds. Different results were found for the 9-year-olds however, as table 4.8 shows.

Table 4.8
Pearson Correlations between Play, and Exploration for the Puppet and the Robot on Both Measures for Leisure for 9-Year-Olds Only (n = 31)

	Leisure	
Play/Exploration	*General*	*Absorption*
With puppet (convergent object)		
Quantity of exploration	.19	.25
Quantity of play in general	.34	.26
Quantity of SM[a]	.06	.20
Quantity of CM	.21	.23
Quantity of Sym	.12	.15
Quantity of Con	--[b]	--[b]
Quality of play	.24	.50**
With robot (divergent object)		
Quantity of exploration	-.05	.08
Quantity of play in general	.41*	.38*
Quantity of SM[a]	.11	.02
Quantity of CM	.12	.10
Quantity of Sym	.13	.03
Quantity of Con	.33	.40*
Quality of play	.20	.34

* $p < 05$
** $p < 01$
[a] SM refers to simple manipulative play, CM refers to combinatorial manipulative play, Sym refers to symbolic play and Con refers to constructive play.
[b] No correlation coefficient could be calculated since constructive play is not possible with the puppet

Table 4.8 shows significant relationships between the total amount of play of the 9-year-olds and both measures of children's leisure. There is also a significant relationship between the amount of constructive play, and the degree of absorption in the

leisure activities for play with the divergent object. For play with the convergent object the quality was found to be significantly related to the degree of absorption experienced during the leisure activities.

Leisure and creativity

Pearson correlations were computed between creativity and leisure as further evidence for the assumption of playfulness as a mediating factor in the relationship between creativity and play. Results are presented in table 4.9.

Table 4.9
Pearson Correlations between Creativity and Leisure (N = 94)

	Leisure	
Creativity	*General*	*Absorption*
Verbal	-.11	-.04
Figurative	-.14	.07

No significant relationships were found between creativity and leisure. The same correlations were computed in the different gender and age groups, but no significant results were found in these subsamples either.

The ability to abstract from reality as the mediating factor: testing Pepler's third explanation

In order to test Pepler's third explanation, Pearson correlations were computed between creativity and symbolic play. No significant relationship was found for the sample as a whole (see table 4.5), but for the 10-year-olds the amount of symbolic play with the divergent play object was found to be significantly related to verbal creativity ($r = .45$, $p < .01$). No significant relationships were found in any of the other age or gender groups.

Discussion

Let us start by discussing Pepler's second explanation that a general playfulness is a mediating factor in the relationship between play and creativity. Three different relationships were examined. The first is the relationship between play and creativity. Some significant relationships between play and creativity were found in this study, but these relationships were not robust and the nature of the relationships varies among the

different age groups. For the sample as a whole a relationship was found between the quality of the children's play and the children's verbal creativity. The quality of play was also found to be related to creativity among the eleven-year-olds, but only to figurative creativity. For the ten-year-olds the quantity of both constructive and symbolic play were found to be related to verbal creativity. It was also found that the strength of the relationship was dependent on the structure of the play material (whether it was the puppet or the robot). Significant relationships were found for play with the divergent play object only. So it seems that if there is a relationship between creativity and play, it is a relationship that is dependent on age and restricted to play with material that is not too convergent.

Our study shows that the relationship between play and creativity can vary across different age groups in a rather unpredictable way. Such variable results at different ages were also found in Vandenberg's study on a related issue (1981); the relationship between play and problem solving which was investigated in different age groups. Our results also seem to confirm Lieberman's theory on play and creativity (1977). Lieberman stated that it is not so much the play itself but rather the quality of the play (reflecting the children's "playfulness") that is related to creativity. She mentioned that when studying play, more attention should be paid to how people play rather than to whether they play or not. Our study found that there are indeed relationships when children use a lot of imagination in their play (as in symbolic and constructive play), or show a high diversity of play types (a high quality score). These are both believed to be manifestations of playfulness (Lieberman, 1977). In what form this playfulness becomes manifest and to what aspect of creativity it is related, is, however, found to differ among the specific age groups.

With reference to the second relationship (the relationship between play and leisure) the following results were found. Children's play was indeed found to be related to their leisure; a significant relationship was found between the quality of the play and the degree to which children get absorbed by leisure activities, but this time the relationship concerned the quality of play with the convergent object only. For boys, some other relationships between play and leisure were also found. The quality and total amount of their play, as well as the amount of combinatorial and symbolic play, were significantly related to both measures of leisure. Again the relationships concerned play with the convergent object only. For the 9-year-olds some relationships were found between leisure and play with the divergent object. The total amount of play was found to be related to both measures of leisure and the amount of constructive play was found to be related to the degree to which they experience absorption in their leisure activities. The only significant relationship between leisure and play with the convergent object in this age group was again the relationship between the quality of play and the degree of absorption by the leisure activities.

The relationship between play and leisure was examined in order to find evidence for the existence of an underlying playfulness. However, as the results show, this evidence for an underlying playfulness was only found for all boys and for the 9-year-old children, because these were the only two groups in which a significant relationship was found between the quality of play and absorption during leisure. Further inspection

showed that the relationship is weaker when the children are older. Thus, it may be that the age effect found for the quality of play is responsible for this decline. It seems that as children grow older individual differences in their playfulness disappear or the playfulness is no longer manifest in the quality of their play. Since girls develop faster than boys in certain domains, this may explain why the relationship is only found for boys at this age. The gender effect found for leisure, showing that girls experience their leisure as more playful and enjoyable than boys, seems to indicate that the girls of this age found other ways to express their playfulness. It should therefore be questioned whether the girls and older children in general indeed lack a consistent playfulness, or whether we did not create the right conditions for these children to manifest playfulness. An explanation for the absence of a demonstrable playfulness may be that the play situation was not very attractive for the older children, especially for girls. Playfulness can become manifest in many different ways, and this was shown by the fact that the play of all boys and the 9-year-olds was related to their leisure in many ways, as tables 4.7 and 4.8 show. However, the age influence and the fact that evidence for the existence of an underlying playfulness was found for boys only, make it hard to determine the nature of this playfulness. When it is indeed a kind of personality trait, as Lieberman (1977) assumes, the question arises as to why girls and older children lack this personality trait.

The third relationship that was investigated was the one between leisure and creativity. It was investigated in order to find out whether playfulness is the mediating factor in the relationship between play and creativity. No significant relationship was found between leisure and creativity. Besides, nearly all significant relationships between leisure and play were only found with the convergent play object, whereas the relationships found between creativity and play all referred to play with the divergent object. The only significant relationships between leisure and play with the convergent object that were found, were for the 9-year-olds, but in this age group no relationships with creativity were found. Therefore it is implausible to believe that playfulness (as found during children's leisure) can be a mediating factor in the relationship between play and creativity.

In summary, it can be concluded with reference to the examination of Pepler's second explanation that no robust relationship is found between the play and creativity of the 9- to 12-year-old children in our sample. Evidence for an underlying playfulness could only be found for all boys and nine-year-olds. It is unlikely that this playfulness is a mediating factor in the significant relationships that were found to exist between play and creativity.

Pepler's third explanation (the transition from concrete reality to a self-created reality is the mediating factor in the relationship between play and creativity) was also tested. This explanation was not confirmed either. Although a relationship was found between symbolic play and creativity for the 10-year-olds, creativity was found to have an even stronger relationship with other aspects of play.

In summary, no robust relationships between play, creativity and leisure were found in this study. However, the significant relationships between play and creativity that

were found in this study, were strongly dependent on age and the type of play material. The finding that many factors can influence the relationship between play and creativity may help to explain the varied results that have been found in previous studies (Vandenberg, 1980; Pepler, 1982). It should be examined whether differences in the age of the subjects and in the degree to which the play material was divergent can be responsible for these variable results. Vandenberg's (1980) hypothesis that an inadequate distinction between play and exploration may have been an artefact in previous studies was not confirmed in our study, since exploration was not found to be related to play. Considering the inconsistent pattern of relationships between play and creativity in our study, Smith and Whitney's (1987) hypothesis that there is no relationship at all between play and creativity, seems to be more plausible.

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Chapter 5

The relationship between parental behaviors and attitudes towards play and the solitary play of 9- to 12-year-olds

The relationship between the acting of caregivers and their children's play has been examined in many studies (e.g., O'Connell & Bretherton, 1984; Slade, 1987; Sorce & Emde, 1981). Singer and Singer (1990) reviewed the studies on this topic and concluded that parental sensitivity, modelling, directing and channelling play behavior may enhance children's playfulness. This conclusion confirms the theory of Sutton-Smith (1979). According to Sutton-Smith children learn to play from their primary caregivers by means of two mechanisms: modelling and sensitive stimulation of the child. However, some criticisms can be made with regard to the studies of parental influences on play. A closer look shows that in most studies play is assessed only while the caregiver (in these studies, the mother) is present and that nearly all studies concern very young children. The relationship between parental attitudes and behaviors towards play and children's play will be examined in the present study. However, it differs from previous studies in two distinct ways.

First of all, the children's play will be observed in a solitary situation. In the earlier studies it was found that children's play was of a higher developmental level when the caregiver was present and often also played. Sorce & Emde (1981) found that it is in particular the mother's emotional availability that makes the child play at a higher level and for longer episodes. It should therefore be questioned whether this positive influence only concerns play while the caregiver is still present, or whether parental characteristics may influence the child's play even when the caregiver is absent.

The second difference concerns the age of the subjects. The subjects in the present study are 9- to 12-years old. There are some studies with subjects of this age in which parental behaviors and attitudes towards play were examined and related to children's creativity (Bishop & Chace, 1974; Harrington, Block & Block, 1987) or in which parental leisure activities were related to children's play (Barnett & Chick, 1986). Although enhanced playfulness in children was assumed to be the intermediating factor in the relationships between these variables, the relationship between parental behaviors and attitudes, and children's play was as far as we know, never directly examined in this age group. In a pilot study Van der Poel, De Bruyn & Rost (1991) developed some ideas about how the playfulness of 9- to 12-year-old children can be related to their parents' behavior and attitude towards play. In that study a trend was found towards a relationship between the quantity and quality of the children's play, and parental behaviors and attitudes towards play. A high quantity and quality of the children's play was found to be related to parental practices and opinions which reflect that parents

should stimulate children to play and that caregivers should be actively engaged in their children's play. However, they should set clear limits on what is allowed and try to avoid interfering in play. Since only 22 children participated in this earlier study, the present study is a replication of this study using a larger sample. Considering the literature on parental styles (e.g. Baumrind, 1967), Sutton-Smith's theory (1979), the conclusions of Singer and Singer (1990) and the results of our earlier study (Van der Poel, De Bruyn & Rost, 1991) it may be expected that three different dimensions in parental attitudes and behaviors could influence a child's play; one referring to *controlling the child's play behavior*, one referring to *stimulating the child to play* and one referring to *sensitive engagement in the child's play*. The aim of the study is to examine whether these attitudes and behaviors are indeed related to the quality and quantity of 9- to 12-year-old children's solitary play.

Method

Subjects

Ninety-six children participated in the study. The children were divided into three age groups: 9-year-old children ($\underline{M}$=9 years and 6 months; $\underline{SD}$=3.8 months), 10-year-old children ($\underline{M}$=10 years and 6 months; $\underline{SD}$=3.3 months) and 11-year-old children ($\underline{M}$=11 years and 7 months; $\underline{SD}$=3.9 months). Each age group consisted of 32 children; 16 boys and 16 girls. The mean each age of all boys was 10 years and 7 months ($\underline{SD}$=11.1 months). The mean age was 10 years and 5 months ($\underline{SD}$=10.6 months) for the girls. All children were attending a normal Dutch elementary school. A letter was sent to the parents of all 9-to-11-year-old pupils of four schools. In this letter it was asked whether they and their children were willing to participate in the study. About 25% of the parents and children answered this letter affirmatively. From these children 16 boys and 16 girls of each age group were chosen at random. The play behavior of one 9-year-old boy could not be observed because of a technical problem while videotaping his behavior. One 11-year-old girl fell ill during the study, leaving our sample with 94 subjects.

Procedure

The parents came to the children's school to be informed about the study and to be instructed on how to fill out a questionnaire concerning their behaviors and attitudes toward play. Each parent then answered the questionnaire at home, and the child brought it back to school when (s)he met the experimenter to participate in the play sessions.

The children were invited to play with the experimenter twice, in two consecutive weeks. Both play sessions took place in a classroom of the children's elementary school, which was equipped for the study as shown in figure 3.2, following Rost's procedure (1986) for observing play.

Rost's procedure consists of confronting children with a ventriloquist's puppet during

a waiting room situation and recording their acting on this object. One of the conditions for evoking play behavior is that the child feels at ease. This would not be the case when the child knew that his/her behavior was being observed. Therefore a waiting room situation was created and the child's play behavior in the waiting room was videotaped inconspicuously. Rost's procedure was extended with a second confrontation which took place the following week, since Rost's ventriloquist's puppet does not provide the possibility to play constructively. A second play object, a robot, was designed in order to provide this possibility, but this object was not very evocative for symbolic play (Van der Poel, De Bruyn, Rost & Riksen-Walraven, submitted). This made us decide to use both objects in order to provide the children with all possible ways of playing.

In order to create a waiting room situation the experimenter also invited the child to play some games and pretended to videotape these games. By doing so it was suggested that these were the games the study was all about. Therefore the play sessions consisted of 5 different episodes which took place according to the following scheme:

1. game with experimenter
2. play with object (waiting room situation)
3. solitary game with rules
4. play with object (waiting room situation)
5. solitary game with rules

When the child entered the classroom the experimenter told her/him that they were going to play some games because she wanted to know how children play. She also told the child that some of these games were to be videotaped. The first game was played together with the experimenter, so the child could get used to the experimenter and the situation. Different games were played in each session in order to prevent the child from losing interest.

In the so-called waiting room, the child could sit at a table in front of a one-way screen behind which a video camera was hidden (see figure 3.2). One of the play objects was placed on this table and the child was told that if (s)he wanted to, (s)he was permitted to play with the object, in order not to get bored. Meanwhile the experimenter was preparing another game. The waiting room was separated from the classroom by means of a screen with two slots, so the child could see what the experimenter was doing, but the experimenter couldn't see what the child was doing. This was also done in order to make the child feel at ease.

During each play session the child was left alone with the play object twice. Each confrontation with the puppet lasted 5 minutes and each confrontation with the robot was 7.5 minutes. The confrontations with the robot lasted longer because the robot provided the children with more ways to play than the puppet.

Measures

Play

The videotapes of the children's confrontation with the play objects were coded every second according to exhaustive and mutually exclusive categories (see appendix). Four

of these categories refer to different types of play as defined by Piaget (1951). One category refers to constructive play, one to symbolic play and two categories refer to practice play; a distinction was made between simple repetitive practice play and combinatorial practice play in which different parts of the object are combined. It should be noted that constructive play was possible with the robot only.

The confrontations of 24 subjects were scored by two independent observers in order to examine whether the scoring was done reliably and in order to determine the interrater-reliability, Cohen's kappa was computed, which varied from .74 to .93 for the puppet and from .75 to .98 for the robot.

Two different scores for the children's play are used in the present analyses. The first score reflects the amount or *quantity* of play and is the number of seconds the child plays with the play objects during both sessions. This means that this quantity score is the sum of the number of seconds played with the puppet (range=0-600) and the number of seconds played with the robot (range=0-900) and ranges from 0 to 1500. This score can be determined for play in general as well as for the specific types of play.

The second score for playfulness reflects the *quality* of play. It is the number of different types of play shown by the child during the confrontations with the play objects. This score ranges from 0 to 4 for acting on the robot but from 0 to 3 for acting on the puppet, since constructive play was not possible with this object, as was mentioned earlier. Like the quantity score, the score for quality is the sum of the number of play types shown with the puppet and the number of play types, shown with the robot, and may therefore range from 0 to 7.

Although the quantity and quality measure showed a significant correlation (Pearson's $r=.62$), a respectable amount of variance between both measures remained. It was concluded that both measures refer to different aspects of play, thus, they are kept as separate measures.

Parental behavior and attitude towards play

The parents' behaviors and attitudes towards play were measured by means of a questionnaire, which was an extended and adapted version of the Bishop and Chace (1971) questionnaire. The questionnaire consists of two parts. The first part measures to what degree the parents' attitude reflects the opinion that children should be offered all possible opportunities to play and consists of 14 statements implying this opinion one way or another (e.g., in the house children should be allowed to play wherever they want, as long as their safety is not endangered). The parents were asked to report on how much they agreed with the statements on a five-point scale, ranging from complete agreement to complete disagreement. The sum of the scores on the individual items of this adapted version reflect the degree to which the parents' attitude supports play; the higher the score the more supportive the parents' attitude towards play.

The second part of the questionnaire contains 32 yes-or-no questions about the parents' actual supportive behavior towards her/his own child's play (e.g., are there places in the house where your child is not allowed to play?). A "1" was scored when

the answer implied that the parent actually offered the child all possible opportunities to play. When the parent did not, a "0" was scored. The sum of these scores reflects the extent to which the parents report that their behavior is focused on providing their child with all possible opportunities to play.

Bishop and Chace (1971) did not analyze the internal structure of the different parts of the questionnaire. We did however. Two developmental psychologists independently categorized the items, according to the three dimensions mentioned earlier; reflecting parental *control of the child's play behavior*, *stimulation of the child to play* and *sensitive engagement in the child's play*. Only two items in the attitude-part and one item in the behavior-part were categorised differently, leading to an agreement of 93.5%. The attitude-items that led to disagreement were items referring to sensitive support, and a closer look showed that they also referred to stimulating the child to play. This made us decide, considering the low number of items, to distinguish only two subscales in the attitude-part; one referring to controlling the child's play and one referring to stimulating the child to play. A third dimension, referring to sensitive support, could be distinguished in addition to the other two dimensions in the behavioral part.

A confirmatory factor-analysis, by means of a LISREL-analysis, was planned in order to examine whether these factors could be distinguished in this sample. However, the structure of the data made the conduction of this analysis impossible. Thus we choose an explorative factor-analysis. A principle components factor analysis with varimax rotation was conducted. A scree-test showed that three factors could be distinguished in the behavioral part of the questionnaire and two factors in the attitudinal part of the questionnaire. Inspection of the items that loaded on these factors, however, showed that they were different from the originally distinguished factors; the stimulating items also loaded on the controlling-factor in both the attitudinal part and the behavioral part. We therefore included the stimulating items in the first factor of both the attitudinal part and the behavioral part reflecting *parental control of the child's play*. In both parts the second factor referred to *parental engagement* in the play. For the behavioral part a third factor was also found, which can be described as *respecting the child's autonomy* (see table 5.1).

Cronbach's alpha was computed in order to determine the homogeneity of these factors and of the questionnaire as a whole. It was found that some items lowered the internal consistency a great deal. These items were deleted from the questionnaire, leaving 12 items in the attitudinal part and 28 items in the behavioral part.

Table 5.1
Cronbach's Alpha for the Factors Referring to Specific Parental Opinions and Practices on Child Play (N = 94)

Factor	Number of items	Cronbach's alpha
General attitude	*12*	*.60*
Controlling	6	62
Parental engagement	6	35
General behavior	*28*	*.70*
Controlling	10	73
Parental engagement	8	35
Respect for autonomy	10	.46

Table 5 1 shows that only the factors referring to controlling the child's play showed a reliable internal consistency Since the opinion and practice on controlling the child's play were the only reliable measures concerning the parental attitude and behavior, only these measures will be related to the measures of the children's play

Results

By computing Pearson correlation coefficients it was first examined whether the parental opinion and practice on controlling play behavior were related to each other The opinion on controlling was indeed found to be significantly related to the practice of controlling ($r = 24$, $p < 05$), but since this correlation was not very high, it was decided to separately relate both measures to the play measures

Pearson correlations were computed between the measures for the quantity and the quality of the children's play behavior and the parental opinion and practice on controlling the child's play No significant relationships were found (see table 5 2)

Table 5 2
Pearson Correlations between Parental Opinions and Practices on Controlling Children's Play and the Quality and Quantity of Child Play (N = 94)

Parental variables	Quantity of play	Quality of play
Opinion on controlling	16	06
Practice on controlling	10	- 17

Pearson correlations were also computed between the parental opinion and practice on controlling the child's play and the quantity of the specific types of play, but no significant correlations were found.

Since some of the quantity scores for play did not show a normal distribution, it was tested whether this may have been the cause of the nonsignificant correlations. Therefore, nonparametric correlations by means of Spearman's rho were also computed. These correlations were nonsignificant as well. Furthermore, it was examined whether play with each separate object was related differently to the parental measures, but this did not lead to significant results either. The same analyses were conducted in each specific age and gender group in order to examine for age and gender differences, but no significant result were found in these subsamples either.

Discussion

No relationship was found between parental behavior and attitude towards play and the amount or quality of the children's play. The lack of this relationship is not in accordance with many other studies that examined this relationship (e.g. O'Connell & Bretherton, 1984; Slade, 1987; Singer & Singer, 1990). The first question we therefore asked ourselves was whether our variables were measured adequately. Since it was found that the children's observed behavior could be reliably categorized into the different types of play behavior and other behavior, it is not plausible that an unreliable assessment of play behavior is the cause of the absence of the relationship. Whether the questionnaire provided a reliable assessment of the parental attitude and behavior is however, less clear. Distinguishing different opinions and practices in the general parental behaviors and attitudes towards play led to scales of items that were not always homogeneous. Only the values of Cronbach's alpha for the factors referring to controlling children's play were of an acceptable level. The finding that the opinion on controlling play behavior does not show a high relation with the practice of the same matter, is in accordance with the many studies concerning the relationship between attitudes and behaviors (e.g., Fishbein & Azjen, 1975; Berkowitz, 1980). However, parental opinions and practices on sensitive support and stimulation of the child's play could not reliably be assessed in this study. It may be that it is sensitive support and/or stimulation of child's play that is related to child play.

A selection effect could have been another explanation for the absence of a relationship. It may have been that the parents who were willing to participate in our study did so because of their supportive behavior and attitude towards play, while parents who did not have such an attitude decided not to participate. This may have led to a lack of differentiation in the parental answers. However, at one of the schools a different way of asking parents to participate was used. In fact this was the same school where our earlier study took place (Van der Poel *et al.*, 1991), in which a trend towards a relationship was found. Parents of this school were informed that every parent and child could be participants and parents should answer only when they really objected against

participation. The response of the parents was indeed much higher than at the other schools, which possibly shows that less selection took place. We therefore examined the relationship for parents and children of this school separately, but the same results were found. It therefore seems implausible to assume that the absence of a relationship is due to a selection effect. Of course, the best way to check for a selection effect would be by comparing the answers of both the participants and non-participants.

Some other explanations can be deduced for the absence of a relationship. First of all, the children in our study were much older than the subjects in the other studies. As children grow older parental attitude and behavior are no longer the only important influences on their behavior. As Rubin, Fein and Vandenberg (1983) mentioned many other factors may influence children's play behavior, like peers, ecological environment, culture, social class and media. All of these factors will have more impact as children grow older. So it may be that parental influences on children's play behavior are diminished by other influencing factors on children of this age.

Another possible explanation for the absence of a relationship is that the presence of an adult may have been the factor that actually caused children to play more or better in previous studies. As mentioned earlier, in most studies considering the relationship between parental behavior and children's play, the children's play was assessed in a situation in which the children played in the presence of an adult, who in most cases was their primary caregiver. It may be that children are not able to generalise the higher level and amount of play, that is established in the interaction with the adult, to a solitary play situation. This explanation is in accordance with the results of Johnson's study (1978) that looked at children's imaginative behavior. In this study it was found that "maternal imaginative behavior does not appear to have a generalized influence on the child's tendency to behave imaginatively in free play" (page 128). Although Johnson's study was restricted to imaginative play, it may be that this situation-dependency of parental influences counts for the other types of play as well.

In summary, this study shows that a lot of questions have yet to be answered in order to examine the assumed relationship between parental behavior and/or attitude towards play and children's actual play. In this study, no relationship was found between parental opinions and practices on controlling the child's play, and the play of 9- to 12-year-old children. First of all it should be questioned whether the absence of this relationship for the older children is the result of incomplete assessment of the parental behavior and attitude, or of a selection effect. On the other hand, it can be questioned whether the relationship does indeed exist for younger children or whether the finding of the relationship in previous studies is the result of an invalid or incomplete assessment of play. Therefore future studies are advised in which the reliability of the assessment of parental behavior and attitudes towards play is examined more extensively. Direct observation of the interactions between parent and child in play and other situations may provide the most valid assessment of the parents' behavior towards his/her child's play. It is also advised to measure play in different situations, that is, together with parents, with peers and solitarily, in order to examine whether parental influences can be generalized to all kinds of play situations. If this proves to be the case, longitudinal studies should answer the question of whether the influences of

parental behavior and/or attitude decrease when children grow older and whether other factors may also influence the play of older children or maybe even exceed the effects of parental influence.

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Chapter 6

Discussion

In this chapter it will be discussed to what degree we succeeded in fulfilling the aims of the entire study. Two different aims formed the basis of this study; the first was to find an adequate method for observing play and the second was to examine the relationships between play and four different variables while using this method. Each aim will first be discussed separately. Therefore, the results and conclusions of the separate chapters are summarized once more in order to examine any insights they may bring with reference to the fulfilment of each aim. In the following sections some general conclusions and hypotheses will be drawn with reference to play as an individual disposition and the consequences of these conclusions and hypotheses for the theory and assessment of play. Some suggestions are presented for future research concerning a valid assessment of play, which is in our opinion the first necessary step towards gaining reliable insights into the functions, antecedents and consequences of play or, in other words, for building a nomological network.

Before we start our discussion, some remarks should be made. First of all it should be realized that the results of these studies concern the play behavior of 9- to 12-year-olds only. It was found that even within this small age range the occurrence of some types of play, and therefore the diversity of the play types, vary among the different age groups. The relationships between play and creativity on the one hand, and leisure on the other hand were also found to differ within the specific age groups. Therefore, similar investigations should be conducted in other age groups in order to find out whether the results of this study can be generalized to other ages. The next comment concerns the fact that only solitary play behavior was evoked and observed in this study. However, children of the age of 9 to 12 very often have stable friendships and often play with peers. Thus, before generalizing our conclusions to play in general it should be investigated whether the same kind of results are found when children's play behavior is assessed while they are playing with peers. In summary, it should be realized that the conclusions drawn in this study only refer to the *solitary* play of *9- to 12-year-old* children.

Observing play

We started our search for a theoretically sound procedure for observing play by a review of the most common theoretical views on the characteristics of play, which resulted in three guidelines that should be taken into account in order to adequately observe play. It was concluded that the observation procedure of Rost (1986) follows these guidelines and should therefore provide a theoretically sound assessment of whether a child plays or not.

Recognizing play behavior

At a behavioral level it may be concluded that it is possible to observe play by means of a theoretically sound procedure. It was in fact possible to evoke play behavior and to reliably distinguish it from other, non-play, behaviors, by following the guidelines that were deduced out of the review. The values of Cohen's kappa, as presented in table 3.2, show that it was also possible to draw a reliable distinction between play and exploration, which prevented the occurrence of the artefact Vandenberg (1980) warned of. Since the occurring behaviors fit in perfectly well with the theoretical concepts of the characteristics of play, it may be concluded that we were indeed dealing with play behavior. So the assessment of the children's play behavior in our study can be considered adequate.

It was decided to distinguish two separate measures for play; a quantitative and a qualitative measure. Although both measures were found to show a considerable correlation ($r=.65$ for the puppet and $r=.61$ for the robot), we decided to keep them as two separate measures, since they refer to different aspects of play behavior. The fact that both measures show different relationships with leisure and creativity convinced us that they indeed reflect two different aspects of play behavior.

Play behavior representing a general disposition

It should be realized that the measures refer to play at a behavioral level only, in the sense that they reflect the quantity and quality of the children's play behavior under specific conditions. In many studies (our own studies included, as described in Chapters 4 and 5) it is assumed, however, that these kinds of measures represent the child's playfulness in general. The study described in Chapter 3 was conducted in order to find out whether it is legitimate to interpret the measures of play mentioned above as an indication of a person's general playfulness. The relationship between play and leisure, as described in Chapter 4, was examined for the same purpose.We reasoned that the assumption, that play behavior in a specific situation can be used as a measure of this playfulness, at least requires some consistency in play behavior over different situations. It was therefore examined in Chapter 3 whether the quantity and quality of play behavior was consistent over situations, and furthermore whether (and how) available play material may influence the quantity and quality of the play behavior. It was found that, even though they were strongly influenced by the available play material, the quantity and quality of play behavior in general showed some consistency over play sessions. However, for the specific types of play different results were found. The occurrence of certain types of play was found to depend so much on the available play material that certain types of play did not occur at all. This may have been the reason why no consistency was found in the occurrence or amount of the more specific types of play. So the study showed that behaviors (which can be considered play behaviors their theoretical base) showed some consistency over different situations. However, this consistency is found only when play in general is concerned.

The conclusion that can be made with reference to the consistency of play behavior may seem to be more or less contradictory. The first conclusion says that play behavior

is rather strongly determined by available play material, while the second conclusion points to a rather stable tendency to play that exists within each individual person. In fact these conclusions point to a different concept of play; the first regards play as a certain type of behavior, of which the occurrence and nature is determined by specific conditions, while the second conclusion refers to play as a rather stable disposition and assumes that people possess a rather stable tendency to play.

The results of these investigations took us back to the second chapter in which we investigated how the behavioral and the dispositional aspects of play are related to each other. It was assumed in Chapter 2 that play behavior is a manifestation of a person's disposition to play and that this disposition can become manifest in many different ways. What remained unclear in this theory, however, was how we should interpret this disposition. Should we consider it as some stable tendency to act playfully in whatever situation, stemming from a kind of personality trait; a general playfulness as Lieberman (1977) describes? Or does the tendency to act playfully only arise because of the occurrence of certain situational variables?

The results of Chapter 3 make both assumptions plausible. It was found that besides some consistency in the occurrence, amount and quality of play, certain factors may indeed determine how and in what amount the disposition to play becomes manifest in (play) behavior. Both play material and the disposition to play are important in determining the occurrence, amount and quality of play. Maybe we should consider both determinants as two independent dimensions, which may vary in the degree to which (independently of each other) they make a person play; the first dimension may range from material being so attractive that even the most unplayful child will play, to material that will not even attract the most playful child. While the second dimension may range from being so strongly disposed to play that even the most unattractive (or absence of) play material will lead to play, to being so weakly disposed to play that even the most attractive material will not elicit play. The combination of these two dimensions may help to determine the occurrence, quantity and quality of play behavior (see figure 6.1).

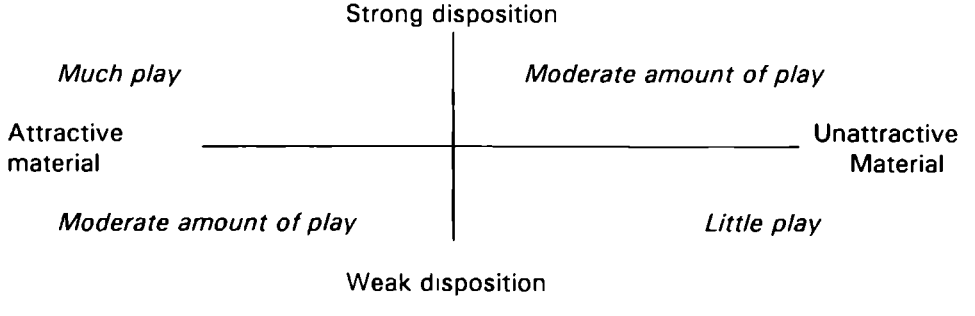

Figure 6.1 The Dimensions that were Found to Determine the Quantity and Quality of Play Behavior

It seems that the occurrence and nature of play is a function of the interaction between material and a playful disposition: Play behavior = f(Material x Disposition). A lot of research is needed, however, to better understand the nature of these dimensions and the interaction between them. It was found in Chapter 3 that factors like age and gender may influence the interaction between the dimensions. The results of this chapter also seem to show that the dimensions and the interacting between them may vary for the different types of play.

We should also realize that play material may not be the only moderating factor. Although the design of our study makes it plausible to assume that the differences in the play objects are responsible for the variances in the play behavior over both play sessions, the hypothesis that other factors may also influence the occurrence and nature of the play behavior, should not be excluded. Since different games were played before and in between the confrontations with the play objects, this may have also influenced the play behavior in each session. We tried to create a real play situation by using these games; each child was assured that the score on these games was not important and that (s)he was nevertheless very good at playing the games, in order to prevent task-oriented behavior. It may have happened, however, that some children kept interpreting the situation as a task-situation and the degree to which they found themselves successful in these tasks may also have influenced their play behavior. Another influence may have been the experimenter. It was chosen at random which experimenter would assist which child. Thus, some variance may have occurred if a child met a different experimenter in each session.

Summary

In summary, it seems wise to conduct further investigations focused on the nature of the playful disposition and on the moderating factors that influence the manifestation of this disposition, before continuing to use the observation of play behavior as a measure for children's playfulness in general. The procedure devised by Rost (1986) may be used for observing the play behavior in these investigations.

The relationships between play, creativity, leisure and parental characteristics

Reviewing the results

The studies described in Chapters 4 and 5 were both conducted in order to fulfil our second aim, the empirical examination of a model concerning the hypothesized relationships between play, creativity, leisure and parental characteristics. Chapter 4 examined whether play is related to creativity. Although some relationships were indeed found between play and creativity, they varied among the different age groups in such an unpredictable way that we were not able to interpret them theoretically. Furthermore, we explored whether people possess a certain general playfulness which would make them act more playful in different kinds of situations and whether this playfulness could be a mediating factor in the relationship between play and creativity. A certain consistent playfulness was indeed found in the sense that the quality of the children's play was related to children's self-professed levels of absorption in their leisure activities. Besides this, some consistency was also found in the play behavior over different situations outlined in Chapter 3. However, a significant relationship between play and leisure was only found with the puppet and closer inspection showed that this playfulness was in particular found with the boys and 9-year-old children. It is not very plausible that playfulness (conceived as a general personality trait, as Lieberman (1977) suggests) was a mediating factor in these relationships, since the relationships found between play and creativity, only concern play with the robot, and playfulness became especially manifest in play with the puppet. Besides this, no relationships were found between leisure and creativity.

The study in Chapter 5 was conducted in order to examine the assumed parental influence on play. That is, the study examined whether children's play was related to their parents' attitude towards play and to their parents' reported behavior towards play. No relationships were found, however, between actual play, and parental opinions and behaviors towards children's play. It should be realized, however, that we only related the parental opinions and practices on controlling their children's play to the children's actual play since we did not obtain a reliable assessment of their opinions and practices on other play-supporting aspects (e.g., sensitive support and stimulation). Thus, it remains unclear whether parental opinions and practices on these other aspects of parental behavior are related to child play. With reference to our second aim we can conclude that model we hypothesized to exist around play could not be demonstrated. The only more or less interpretable relationship that was found, was between play and leisure, although the relationship could only be demonstrated for boys and for 9-year-old children and only concerned play with the puppet. Although it was not reported in any of the former chapters, we also computed correlations between parental characteristics and creativity and leisure, but they were also found to be non-significant. In figure 6.2 the results of the individual studies are summarized schematically.

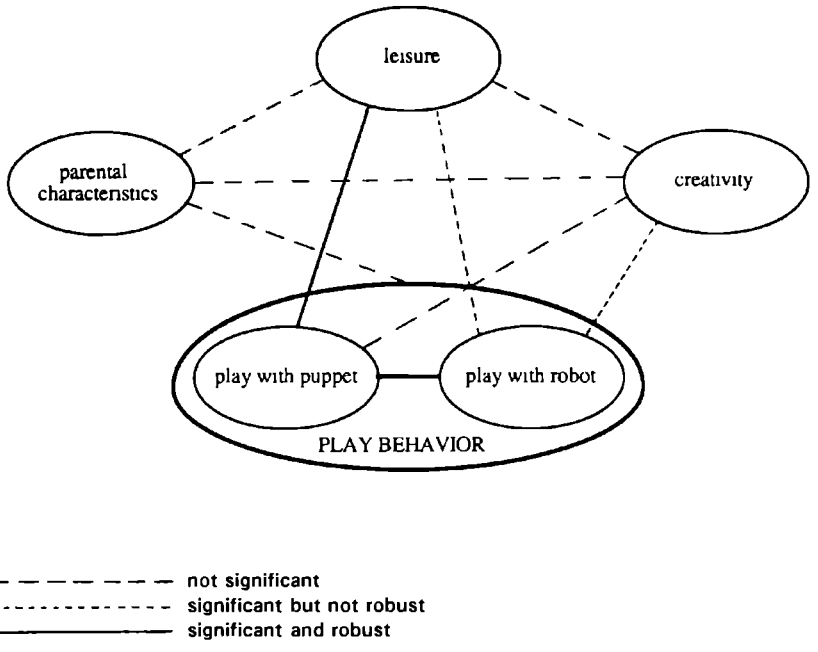

Figure 6.2
The Relationships Found in the Empirical Studies

The results of our study do not comply with the results of many earlier conducted studies. How can these striking differences be explained?

Explaining the findings

A possible explanation may have been that we did not measure the variables reliably. We do not believe however, that this explanation is plausible for creativity and leisure. A considerable internal consistency was found for the creativity-measures and furthermore these values were comparable to the values found by Wallach and Kogan (1965). The finding that the fluency and originality measure were so highly correlated did not comply with the results of Wallach and Kogan. Their subjects were however, much younger than those in our study. In later studies, in which older children, high correlations were found (Kogan, 1983). It can therefore be concluded that creativity was measured reliably in our study. The different measures for leisure also showed a considerable degree of internal consistency. Also, all the measures were related to some aspect of the children's play behavior, making the hypothesis that leisure was not measured validly less plausible.

For the parental characteristics, different conclusions should be drawn. We did not succeed in finding a reliable measure of parental stimulation or sensitive engagement

and according to other studies and theories about parental influences on play, these may be important determinants of children's play. It is therefore advised to use observations of parental acting as a measure in future research. In summary, it seems that unreliable measurement of the variables may have influenced the relationships in which parental characteristics were involved but this does not explain the absence of other relationships in the model. Therefore some alternative explanations for the absence of the assumed relationships were inferred.

A striking difference between the present study and previous studies is the age of the subjects. The results in nearly all earlier studies referred to infants and preschoolers. Play research in which the subjects are older than 7 is rather rare. This was in fact the reason why we chose 9- to 12-year-old children for our study. In many studies concerning the play behavior of younger children, especially the ones concerning parental influences, it was found that differences among the children referred to differences in the developmental level of their play. For example, it was found that the children of sensitive parents played at a high developmental level. They did so more often and for longer periods than the children of insensitive parents (Sorce & Emde, 1981; Belsky, Garduque & Hrncir, 1984; Slade, 1987). Children 9 and above have passed all developmental stages in play (Bühler, 1928; Parten, 1932; Piaget, 1951; Smilansky, 1968). This implies that developmental differences may have disappeared, in the sense that all children of this age should be able to play at the highest developmental level. This means that the inter-individual differences that we found in the play behavior of 9 to 12 year old children are not the same as the inter-individual differences in the play of younger ages, in the sense that the differences are no longer of a developmental nature, and may therefore be differently related to all kinds of variables.

An explanation for the differing results that also relates to the fact that our subjects are much older than the subjects in most other studies has already been presented in Chapter 5. In this chapter it was mentioned that play can be influenced by many factors (Rubin, Fein & Vandenberg, 1983) and the influences of many of these factors seem to grow stronger as children grow older. It may be that play for older children is influenced by various factors, thus, as the present studies showed it was very hard to unravel and/or control the influences of these factors on the specific relationships as being examined.

Another explanation for our results being so different from earlier studies may be that the method of assessing play in our study differed from the method used in other studies.We used this method to prevent our results from being obscured by possible artefacts. Some of the artefacts that are mentioned often by investigators of play are the experimenter (or tutoring) effect (Smith & Syddal, 1978; Pellegrini, 1984; Smith, 1988) and imprecise assessments of the occurrence of play and/or the child's ability to play (Weisler & McCall, 1976; Vandenberg, 1980; Cheyne,1982). According to Vandenberg (1980) the imprecise assessment is due to the fact that a clear-cut definition of play is lacking in many empirical studies. This may have caused other non-play behaviors to be included in the play measures. Most theorists stress the lack of a clear distinction between play and exploration in many studies (Weisler & McCall, 1976; Vandenberg,

1980; Wohlwill, 1984). In our study we attempted to take this remark into account. As presented in Chapter 2, we started our research by deriving a definition of play from a review of the literature on the characteristics of play, and used a method of observing play that was in compliance with this definition. Chapter 3 showed us that this method made it possible to distinguish play from non-play behaviors, including exploration. This prevented the artefact as mentioned by Vandenberg from influencing our results. The experimenter effect is another artefact stressed by Smith, he mentions in several studies (Smith & Syddal, 1978; Smith & Whitney, 1987; Smith, 1988) that the effects of play on the performance of other abilities was caused by (unconscious) stimulation by adults. In many studies children's play was indeed observed in the presence of an adult. In our study we tried to prevent the occurrence of this artefact by observing the children while they were left alone in a waiting room. The experimenter was unable to see them and therefore unable to stimulate them in one way or another. It may be possible that the results of earlier studies were due to artefacts. Thus, our results may have been different because such artefacts were absent.

A completely different explanation for the absence of the assumed relationships in our model may be that our theory underlying this model was inaccurate. In the model it was assumed that a certain general playfulness was the mediating factor in the separate relationships. In line with earlier studies, it was assumed that children may possess a certain stable disposition to play, or in Lieberman's terms (1977), a certain playfulness which would make them disposed to act in a certain way, in all kinds of situations. In fact, no evidence was found for this hypothesis in the present study. Playfulness implies a certain consistency in children's behavior over different situations. Chapter 3 however, showed us that apart from the consistency in the play behavior over different situations a rather large amount of variance was found as well. In Chapter 4 we found different relationships for play with the puppet than we did for play with the robot, and although leisure was also assumed to be an adult type of play, it was significantly related to play for all boys and 9-year-olds only. Thus, it is important to ask whether children's play behavior in a given situation with its specific influences (such as available play material, the presence or absence of a stimulating adult or peer) does indeed stem from a more general and stable disposition to play. The results of the different studies seem to show that the play that was observed in our study should be interpreted as the play behavior that is context specific. It may be that, as previous studies have shown, play under different conditions shows different relationships with variables such as creativity and parental behavior. In fact this question brings us back to a discussion of our first aim; to develop a valid measure to assess the general disposition to play.

Before returning to this subject we would also like to make a comment on the causal directions of the relationships mentioned in our study. Most investigators in the past have hypothesized that children would act more playfully when the attitude and behavior of their parents helped to enhance this playfulness (Bishop & Chace, 1971; Harrington, Block & Block, 1987). In short, it is assumed that parental characteristics enhance playfulness which in turn enhances play behavior and leisure. However, on the other hand the causal relationship may operate in the opposite direction (Sutton-Smith, 1979).

It may be that parental attitudes and behaviors stimulate the children to act more playful in all kinds of situations (leisure included) and that this playful behavior may enhance the playfulness. In other words, parental characteristics enhance play behavior and leisure activities, which in turn enhance playfulness. Since our study is correlational, we can not determine which hypothesis is more plausible. Therefore experimental and/or longitudinal research is advised for future studies.

A general discussion

The conclusion that results from both the search for a method to reliably observe play and from the attempt to examine the model concerning the relationships between play and other variables is that more insights are needed into the nature of a person's disposition to play. First it is important to investigate more extensively whether we can indeed speak of a stable disposition to play. In the next section some hypotheses about the nature of this disposition will be presented. They may serve as guidelines for future investigations.

Playfulness as a stable disposition

It was concluded that even if there is a certain stable disposition to play, moderating factors will determine the occurrence, quantity and quality of play behavior, especially when more specific types of play are involved. In a previous section the following function was proposed: P*lay behavior* = f(M*oderator x* D*isposition)*. In fact this conclusion bring us to the classic debate concerning the trait versus state controversy; is it the person or the situation that determines the occurrence and/or kind of behavior? For a long time personality-psychologists assumed that an individual's personality could be described by means of a few basic traits, which in turn were believed to determine how people would behave in all kinds of situations (Alport, 1937; Cattel, 1950; Eysenck, 1960). This assumption implies that a person's behavior shows a certain amount of consistency over different situations. The debate started when Mischel (1968) pointed to the lack of evidence in the cross-situational consistency of behavior. He pointed out that the correlation coefficients of behavioral characteristics over different situations mostly fell between .20 and .30 and thus questioned the utility of the trait-concept. However, many arguments arose against Mischel's point of view. Pervin (1990) summarized these arguments as follows:

- The low correlation coefficients are due to the poor quality of the research
- An adequate sampling of many behaviors over many occasions are needed to find evidence of consistency, which is lacking in most studies.
- Many behaviors that have a different phenotype may in fact result from the same genotype
- Some people are more consistent in their behavior than others
- In some situations people are more consistent than in others

- The laboratory situation may be so high in situational constraints that individual differences in responses are minimized
- Trait judgments may not reflect the real situation.

Pervin ends his discussion of the debate with mentioning that: "Actually all personality-psychologists agree that there is evidence for both consistency or stability and for inconsistency or variability. They disagree about how much of each ..... (is) accounting for regularities that do exist." (p. 320).

Pervin's conclusions also concern the importance of studying play behavior in particular, implying that we should first investigate more extensively the degree to which a stable disposition to play and other moderating factors influence the nature and appearance of play behavior and how both determinants may interact with each other. This means that play behavior should be observed and compared in many different situations in which those factors that are assumed to influence the play behavior are varied systematically. In the present study too few situations were compared. Although some consistency was found over both play sessions, more situations are needed to validly demonstrate the existence of the disposition to play (Epstein, 1979). In the next section we will offer some suggestions for the kind of situations in which play behavior may be observed.

Before discussing our second hypothesis about the nature of a disposition to play, we will state how we view the disposition to play. We view this disposition only as underlaying play behavior. We do not exclude the hypothesis that this disposition may underlay other behaviors such as creativity and leisure, and that it refers to a more general personality trait. However we do suggest that one should first restrict oneself to examining whether a particular disposition determines a person's play behavior in different situations.

Play behavior stemming from several dispositions

Even when one restricts oneself to only examining the consistency of play behavior, it may be questioned whether all play behaviors will arise from one particular disposition. Another hypothesis may be that the disposition to play is a multi-dimensional construct (such as intelligence) and consists of various "subdispositions" or dimensions, which may be independent of each other. If this were the case, play behavior in a specific situation may represent one of these dimensions while play behavior in another situation may represent a different dimension. This implies that both behaviors may be independent of each other and will therefore be inconsistent. Pervin (1991) speaks of situation-specific traits in this context. An example may be that playing solitarily and playing with peers stem from different dispositions, in the same way as the ability to learn a foreign language and the ability to understand mathematics stem from a different type of intelligence. In order to find whether the disposition to play consists of different dimensions investigations should examine whether play behavior is consistent only within certain situational domains.

Play as a dynamic disposition

A different point of view arises when one focuses on the inconsistency of play behavior over different sessions rather than its consistency. Both hypotheses assume some stability in a person's disposition to play within certain situational domains and may therefore be considered as "static" theories. Another point of view may arise when one considers the disposition to play as a dynamic parameter. This implies that the disposition to play fluctuates over time and makes a person more disposed to play at one moment than at another. It means that a person's play behavior does not only vary because of varying moderators but also because of a varying tendency to play; the disposition to play may not even be stable under more or less identical circumstances. Considering intrinsic motivation as one of the characteristics of play, it is possible that whether and how play behavior occurs depends on the varying moods within a person. Internal moderators, like fatigue or level of arousal, may determine these moods. This hypothesis is not new. Hutt (1966), Berlyne (1966) and Ellis (1973) have already pointed to the variability that exists in the tendency to play. This hypothesis implies, however, that the occurrence and nature of play behavior may fluctuate so widely that it is impossible to deduce any general measure of a person's disposition to play.

Suggestions for further research

Future research should concentrate on examining the existence and nature of playfulness as an individual disposition. More insights into the nature of the disposition to play and on the way it becomes manifest in play behavior are needed to make a reliable assessment of children's playfulness. This is, in turn, necessary to relate play to other variables. Some suggestions for future testing of the relationships can be made, especially with reference to the assessment of parental characteristics. For example, it may be more reliable to assess parental behaviors by direct observation of the interaction between parent and child. This may also provide more insights in the causal direction of the hypothesized relationships. For all assumed relationships, experimental research is needed to determine the causal relationships. However, we advise to first concentrate future research on the development of a valid measure of play. Therefore, more insights into the disposition to play and its behavioral manifestations are necessary. The hypotheses about the nature of this disposition mentioned in the former paragraph may serve as guidelines for this kind of research.

Since the results of the present study showed some consistency in the play behavior over the sessions, we suggest to start by investigating this consistency more extensively. As Epstein (1979) mentioned, play behavior should be observed in various situations. He added that one should increase the amount of subjects proportionally to gain insights in both the dispositional and the situational determinants of behavior as well as the interaction between them. By comparing play behavior in many different situations, additional insights may be gained into the influence of possible moderating factors. It is advised to vary the possible moderators systematically, while keeping other possible

moderating factors constant. The present study showed that available play material is one such moderating factor. Providing children with play material that evokes practice play, symbolic play and constructive play are other examples of possible moderating factors. Materials that provide play opportunities for many types of play may be another factor. This may be done while keeping the presence (or absence) of a peer constant. Next the presence of a peer may be varied while keeping the available play material constant. Next, both factors may be kept constant while varying the surrounding environment. Figure 6.3 shows this possible design.

	play in laboratory		play at home	
	solitary play	play with others	solitary play	play with others
object with practice-opp				
object with symb-opp				
object with constr-opp				
object with all opp.				
all objects at same time				

Figure 6.3 A Possible Design to Gain Insights Into the Nature of a Disposition to Play

The pattern of differences and consistencies over the different situations may show whether and how each factor influences the occurrence and nature of play behavior. If play behavior is consistent across different situations, besides those found in our study, it may be concluded that it is indeed possible to deduce a stable disposition from a child's play behavior.

It also might be found that play behavior is consistent only within a range of more or less comparable situations. When such patterns of consistency in the play behavior arise, this may point to the hypothesis that play behaviors stem from different and more or less independent dispositions and that we should speak of a situation-specific playfulness. In this case, the next step would be to determine the similarity between situations where consistency is found to determine the nature of the specific dimensions (e.g., presence of peers or presence of specific play material, being at home, etc.). It

may be, for example, that consistency is found only for play in solitary situations. In this case, the disposition to play solitarily may be such a dimension.

A third possibility is that no consistency is found, suggesting a dynamic disposition to play. Even when external moderators are similar, internal moderators may influence play behavior (e.g., fatigue or level of arousal). In this case, it may be examined whether a person's disposition to play fluctuates in relation to his or her level of arousal. Observing play behavior at different times over the day and across several days may provide insights as to whether such fluctuations follow a regular pattern.

Some children are perhaps more consistent in their behavior over different situations than others. With reference to Figure 6.1, this means that these children score either very low or very high on the disposition-dimension since such an extreme score implies that the available material will not influence their behavior very much. Thus, children might be grouped depending upon their amount of consistency over different situations and the amount of play in these situations. Children who are highly consistent and show much play behavior can be considered strongly disposed to play, while children who are highly consistent, but show little play can be considered weakly disposed to play. Children showing a low consistency can be considered moderately disposed to play. It also might be investigated whether these children differ significantly on other variables as well.

Because our study found that some aspects of play behavior differed significantly among the different age groups, the studies suggested above should be conducted with different age groups. It might even be better to conduct a longitudinal study in which observations are repeated after some period of time. It is also suggested to investigate the play behavior of each gender separately, since some gender differences were found in our study. Finally, the present study shows that the hypotheses mentioned above should be examined separately for each type of play.

General conclusions

In summary, insights into the nature of a person's general disposition to play are needed to facilitate further play research. The best way to do this may be to compare persons' play behavior in different situations while systematically varying the factors that are assumed to influence play behavior. The pattern of differences and consistencies over these situations will help answer the question whether people possess a stable disposition to play, whether the disposition to play consists of different dimensions or whether play fluctuates so strongly and unpredictably that it is not possible to deduce a measure of a person's general disposition to play. After these insights are gained, play can be related validly to all kinds of variables and a nomological network around play can be built. Maybe different nomological networks should be built for the specific dimensions of playfulness, since the dimensions can be related differently to certain variables. Verbal intelligence, for example, will be related differently to language-acquisition than will figurative intelligence.

Our study showed the importance of answering the question of a stable disposition to play for gaining insights in the characteristics, functions, antecedents and consequents of play. It provided a first step towards answering the question by showing what kind of experimental research is needed to investigate play validly and by finding a procedure for observing play reliably. It is therefore, hoped that this study made a contribution to the insights in play.Even if play is not really supporting any developmental task, it provides children with so much pleasure that it remains an important phenomenon of human development, which deserves to be stimulated by adults as much as possible.

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Appendix 1

Observation categories

General instructions

- **all behaviors** are categorized **every second** in the categories mentioned below.
- score the dominating behavior:
  1. the behavior that occurs the longest during the given second.
  2. the primary categories are scored, they dominate the secondary categories.
- note the course of the behavior: it is often only possible to determine the category in contrast with the consecutive behavior. It is therefore better to preview a play session in its entire form.
- If a change of behavior lasts less than **two seconds** the behavior is not scored. In this case the behavior that was observed prior to the change is scored.

Primary categories

Exploration

Description: focused attention, handling and/or manipulating the object

Characteristics:
- the subject is acting in concentration, strongly involved in his/her acting
- body and face show signs of tension
- subject clearly looks at the object of exploration

Manipulative play 1

Description: repetitive manipulating of the object or parts of it, without signs of exploration.

Characteristics:
- either only one part or the complete object is being manipulated
- there is clear repetition of the manipulation
- body and face are relaxed: the subject often visibly enjoys the manipulating
- the manipulating is done for the pleasure in acting itself, not with a certain result in mind

Manipulative play 2

Description: combinations of various elements of the object are made deliberately.

Characteristics:
- manipulation of several parts of the objects either simultaneously or consecutively in a repetitive pattern.
- the subjects tries to find out what (s)he can do with the object, contrary to exploration in which it is tried to find out what the object can do
- the effect of the combination is examined after the manipulating
- body and face are relaxed

There are four kinds of manipulative play depending on the nature of the combinations that are made.
- MP2a: combinations are made with several parts of the objects itself
- MP2b: either the object or one or several parts of the object are combined with the subject
- MP2c: either the object or one or several parts of the object are combined with the environment
- MP2d: there is a combination of the combinations mentioned above.

Manipulative play with the environment

Description: like the other forms of manipulative play but in the course of his/her engagement with the object, the subject looks around at things other than the object of manipulation.

Characteristics:
- like MP1 or MP2 but the subject does not look at its manipulating but at the environment.

There are three sub-categories:
- MP/E1: the subject is manipulating the object but is meanwhile looking at the environment or at the experimenter through the slots in the screen
- MP/E2: the subject is manipulating the object but is meanwhile reading the instructions attached to the screen
- MP/E3: the subject is manipulating the object and is meanwhile focused on the environment in another way than mentioned above.

Symbolic play

Description: pretend play with the object

Characteristics:
- it is pretended that the object is either a living person or something else
- the object is spoken to as if it were a living person, or the subject has the object act like a living person (walking, waving, speaking, etc.)
- the subject is acting in concentration and is involved in this acting
- S1: the subject has the object perform a symbolic act
- S2: the subject has the object perform several symbolic acts simultaneously or consecutively

- S3: the subject and the object imitate each other, they act similarly either simultaneously or consecutively
- S4: the subject and object interact, the subject has the object react on its own acting and/or vice versa, or the subject builds a scene around the object. In other words: the subject has the object experience something by means of having it perform several acts which are connected in a logical way.

Constructive play

Description: the subject constructs a new object out of separate parts of the object.
Characteristics:
- separate parts are combined into a new entity according to a **preconceived plan**, contrary to MP2 in which only separate combinations are made.
- combinations are made rapidly and effectively, the results are viewed only when a new entity has been constructed, contrary to MP2 in which the effects are viewed during the constructing
- the subject is very much involved and it is very difficult to distract the subject

There are three levels within constructive play:
- C1: the construction is discarded before completion
- C2: the construction is completed and represents a robot again
- C3: the construction is completed and represents something other than a robot.

Secondary categories

Being engaged with him/herself

Description: the subject is engaged with him/herself one way or another, without the object being involved in this.
Characteristics: a common example of this category is that the subject is looking at him/herself in the mirror or making faces in the mirror.

Looking at the environment

Description: all attention is focused on the environment or objects therein.
Characteristics: the subject looks at, handles or manipulates the environment or several parts of the environment without involving the object.

There are three subcategories within this category:
-E1: the subject is looking at the environment or the experimenter through the slots in the screen
-E2: the subject is reading the instruction attached to the screen
-E3: the subject is focusing his/her attention on the environment in another way than mentioned above

Looking at the object

Description: the subject is looking or gazing at the object
Characteristics:
- the subject is looking at the object without any visible signs of interest; there is no sign of attentive or specific viewing contrary to exploration
- the subject can either be looking at the object directly or by means of the mirror

Handling of the object

Description: the subject is handling or moving the object or parts of the object
Characteristics:
- the object or parts of the object are moved
- the object or parts of the object are manipulated without repetition or the making of combinations

Appendix 2

Descriptive data referring to the play with the objects

Descriptive statistics of the number of seconds spent playing with each object (n = 94)

type of behavior	*puppet*				*robot*			
	mean	stdev	range	perc*	mean	stdev	range	perc*
expl	138.5	82.6	0-433	22.9	114.2	66.9	0-364	12.9
sm	40.9	48.6	0-234	6.7	74.2	64.4	0-312	8.3
cm	65.2	54.4	0-288	16.2	180.1	136.6	0-642	29.2
cmR	34.7	41.7	0-146	5.6	106.9	83.5	0-451	11.8
sym	30.5	69.4	0-466	5.4	4.5	23.0	0-195	0.6
symR	7.4	24.0	0-148	1.2	0.5	3.0	0- 23	0.1
con					28.3	55.4	0-257	3.4
conR					17.7	56.8	0-387	2.7
play general	178.7	124.5	0-495	29.8	412.3	170.7	0-696	47.4

Descriptive statistics of the number of seconds spent playing with each object *for girls* (n = 47).

type of behavior	*puppet*				*robot*			
	mean	stdev	range	perc*	mean	stdev	range	perc*
expl	130.5	66.9	0-268	21.8	122.7	72.4	0-364	13.9
sm	31.5	40.9	0-141	5.3	92.0	70.6	0-312	10.2
cm	63.7	62.6	0-288	16.7	151.1	104.9	0-461	29.0
cmR	37.0	45.7	0-146	6.2	122.2	97.0	0-451	13.9
sym	33.0	89.3	0-466	5.5	5.3	32.2	0-195	0.7
symR	6.7	26.5	0-148	1.1	0.5	3.8	0- 23	0.1
con					14.2	44.0	0-169	1.8
conR					17.7	52.6	0-238	3.3
play general	171.7	130.0	0-495	28.6	402.9	157.8	0-679	46.4

Descriptive statistics of the number of seconds spent playing with each object *for boys* (n = 47)

type of behavior	*puppet* mean	stdev	range	perc*	*robot* mean	stdev	range	perc*
expl	146.7	95.9	0-433	24.0	105.7	63.2	0-364	12.0
sm	50.5	55.9	0-234	8.2	56.4	52.5	0-312	6.4
cm	66.7	50.4	0-192	15.6	209.1	152.7	0-642	29.4
cmR	32.4	39.7	0-143	5.1	91.7	71.0	0-349	10.5
sym	28.0	45.5	0-466	5.3	3.8	14.3	0- 85	0.4
symR	8.0	24.9	0-148	1.3	0.5	2.5	0- 13	0.1
con					42.4	65.0	0-257	5.0
conR					17.8	63.4	0-387	2.1
play general	185.6	120.8	0-495	31.1	421.7	173.6	21-696	48.5

Descriptive statistics of the number of seconds spent playing with each object *for 9-year-olds* (n = 31)

type of behavior	*puppet* mean	stdev	range	perc*	*robot* mean	stdev	range	perc*
expl	162.6	102.3	17-433	26.3	125.6	65.3	43-289	14.5
sm	29.5	28.1	0- 92	4.8	75.1	62.7	0-206	8.4
cm	78.7	64.2	0-288	18.9	187.7	129.3	29-576	32.4
cmR	41.7	41.2	0-146	6.4	128.7	97.2	3-451	14.4
sym	36.2	74.8	0-387	6.9	10.4	35.8	0-195	1.2
symR	9.8	24.1	0-103	1.5	1.1	4.6	0- 23	0.1
con					24.0	49.9	0-169	2.7
conR					17.6	50.7	0-238	2.0
play general	196.0	123.9	0-495	32.8	445.3	173.6	21-696	50.0

Descriptive statistics of the number of seconds spent playing with each object *for 10-year-olds* (n = 32)

type of behavior	*puppet* mean	stdev	range	perc*	*robot* mean	stdev	range	perc*
expl	139.4	64.8	0-296	23.2	114.8	76.0	17-364	12.8
sm	46.1	47.2	0-171	7.7	74.9	59.3	0-209	8.3
cm	68.1	56.0	0-192	16.8	179.5	134.3	15-473	27.5
cmR	35.3	46.2	0-141	5.9	98.0	72.8	8-315	10.2
sym	49.7	88.8	0-466	8.3	0.1	0.5	0- 3	0.3
symR	11.0	33.4	0-148	1.8	0.0	0.0	0- 0	0.0
con					38.4	63.4	0-256	5.0
conR					12.2	38.2	0-168	2.4
play general	209.8	132.8	0-495	35.0	403.2	177.2	53-655	46.7

Descriptive statistics of the number of seconds spent playing with both objects *for 11-year-olds* (n = 31)

type of behavior	*puppet* mean	stdev	range	perc*	*robot* mean	stdev	range	perc*
expl	113.4	71.5	0-282	18.7	102.1	61.4	0-244	11.4
sm	46.8	63.2	0-234	7.9	71.8	72.6	0-312	8.3
cm	48.7	36.4	0-115	12.7	173.2	150.0	0-642	27.7
cmR	27.1	37.2	0-143	4.5	94.3	77.3	0-349	11.0
sym	5.0	9.9	0- 46	0.8	3.2	15.3	0- 88	0.4
symR	1.3	3.3	0- 13	0.2	0.5	2.4	0- 13	0.1
con					22.2	51.9	0-257	2.5
conR					23.6	76.6	0-387	3.6
play general	129.2	102.8	0-312	21.5	388.6	187.6	0-696	45.9

* The percentages refer to the sum of the percentages of every individual subject, the so-called ipsative scores, representing the proportion of time spent playing on the total observation time.

Appendix 3a

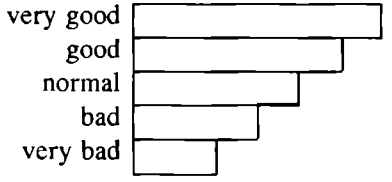
Leisure questionnaire

Instruction
I want to know what children do when they have free time. That is why I have made a list of things you can do when you are free. I want to know if you ever do these things. I also want to know why you do these things and how you feel when you do them. To show you how to fill in the questionnaire I have written an example on the blackboard. Have a look.
(On the blackboard is the following example-item.)

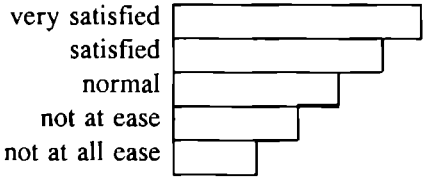
Do you ever do the dishes?
yes no

Why do you usually do this?
a. because I like doing it myself
b. because I do not have anything else to do
c. because I have to

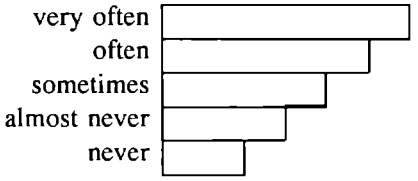
If you are doing the dishes, how do you feel?



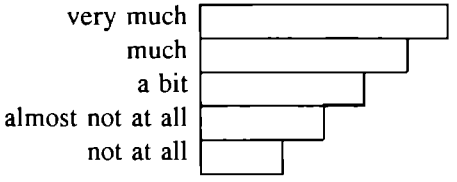
If you are doing the dishes, do you feel satisfied and relaxed?



Are you ever so busy doing the dishes that you forget about the time?



Do you think that doing the dishes is like playing?



I am so fond of doing the dishes that I do them every day. That is why I will answer the first question like this *(The experimenter circles "yes").* I do the dishes because I want to do them myself, so I circle the "a". *(The experimenter shows how to do this).* When I am doing the dishes I feel very good. This is the way to show this *(The experimenter ticks the top section.)* How do you feel when you are doing the dishes? *(The experimenter asks a child to answer).* How would you show this on the form? And when you find doing the dishes ..... (not yet mentioned answer), how would you show this on the form? *(This way all alternatives are demonstrated.)* Does everybody understand how to fill in the form, who does not?
(When a child makes clear (s)he does not understand, repeat the procedure with "doing homework")
Okay, we continue with the dishes. When I am doing the dishes, I feel satisfied and at ease. How do I show this? *(Have a child answer.)* Who does not understand this? Any questions?
I am often enjoying doing the dishes so much that I completely forget about the time. How do you show this? *(Have a child answer.)* Who does not understand this?
I think that doing the dishes is a bit like playing. To me doing the dishes is a game. How do I show this. *(Have a child answer.)* Who does not understand this? Any questions?
You are given a little book with thirty questions. Do not open the book yet, just have them on your desks. *(When all children have a book:)*
On the front page it says at the bottom: name, group, school etc. You may now fill this in with a pencil. Where it says name, you fill in your name etc. When you have finished, put down your pencil.

(When all children have put down their pencils:)
Go to the first page. On this page it says "Exercise". This is this page. *(The experimenter points at the blackboard.)* Fill in this page and put down your pencil when you have finished this page. So do not go to the next page until I say so. *(When all children have finished one child is asked to answer the questions in front of the class. It is once more asked if there are any questions. If this is not the case, the children are told to fill in the rest of the questionnaire.)*

The questionnaire consists of the following items, and each question consists of the five sub-sections as mentioned above:

1. Do you ever make a drawing?
2. Do you ever watch television?
3. Do you ever make up stories?
4. Do you ever make your own songs?
5. Do you ever write a letter?
6. Do you ever play outside with other children?
7. Are you a member of a club?
8. Do you ever act or play "Punch and Judy"?
9. Do you ever make your own games?
10. Do you ever build things?
11. Do you ever listen to music?
12. Do you ever have adventures?
13. Do you ever write in a diary?
14. Do you ever sing?
15. Do you ever walk?
16. Do you ever play with dolls?
17. Do you ever prepare things to eat?
18. Do you ever visit other people?
19. Do you ever do ballet?
20. Do you ever just look at people or things?
21. Do you ever make music?
22. Do you ever read?
23. Do you ever do sports?
24. Do you ever do things with other children?
25. Do you ever make your own toys?
26. Do you ever play outside on your own?
27. Do you ever play with animals?
28. Do you ever do handicrafts?
29. Are you ever lazy?
30. Do you ever do any other thing that has not been mentioned before?

Appendix 3b

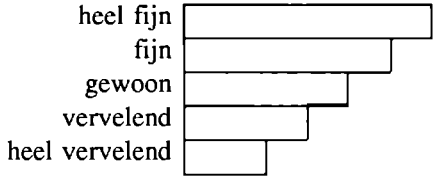
Vragenlijst naar de vrijetijdsbesteding

Instructie
Ik wil graag weten wat kinderen allemaal doen als ze vrij hebben. Daarom heb ik een lijst gemaakt van allemaal dingen die je kunt doen als je vrij hebt en ik wil van al die dingen weten of jullie die wel eens doen in je vrije tijd. Ik wil ook graag weten waarom je die dingen doet en hoe je je voelt als je daarmee bezig ben. Om je te laten zien hoe je de vragenlijst met invullen, heb ik een voorbeeld op het bord (of op een overhead-sheet) geschreven. Kijk maar. *(Op het bord of op de sheet staat een voorbeeld-item dat er als volgt uitziet:)*

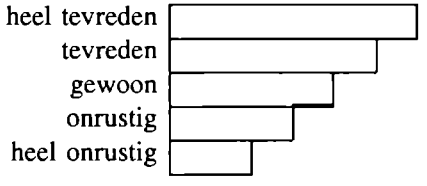
Doe je de afwas wel eens?
ja nee

Waarom doe je dat meestal?
a. omdat ik dat zelf graag wil
b. omdat ik niet anders heb te doen
c. omdat ik dat moet

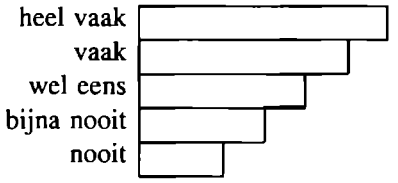
Als je aan het afwassen bent, hoe fijn voel je je dan?



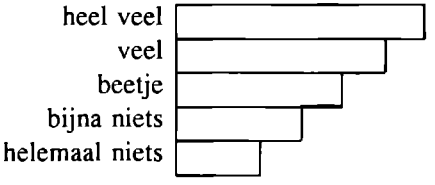
Als je aan het afwassen bent, voel je je dan tevreden en rustig?



Ben je wel eens zo druk met afwassen bezig dat je helemaal de tijd vergeet?



Vind je dat afwassen op spelen lijkt?



Nu moet je weten dat ik dol op afwassen ben, dat doe ik elke dag. Dus op de eerste vraag antwoord ik zo... *(Zet een cirkel om "ja")* En dat afwassen dat doe ik omdat ik het zelf wil, dus er komt een cirkeltje om de "a". *(De proefleider doet dat voor.)* En als ik aan het afwassen ben, voel ik me heel erg fijn. Dat geef ik zo aan. *(In de hoogste balk wordt een kruisje gezet.)*
Hoe voel jij je meestal als je aan het afwassen bent? *(De proefleider laat een kind antwoorden).* Hoe zou je dat aangeven op de kaart?
En als je afwassen ....(nog niet genoemd alternatief) vindt, hoe geef je dat aan? *Zo worden alle alternatieven gedemonstreerd.* Snapt iedereen hoe het gaat? Wie heeft het nog niet begrepen?
(Als een kind zegt of laat zien dat het de bedoeling nog niet heeft begerepen, wordt deze nogmaals uitgelegd aan de hand van het voorbeeld huiswerk maken.)
Goed, dan gaan we verder met het afwassen. Als ik aan het afwassen ben, voel ik me wel tevreden en rustig. Hoe geef je dat aan? *(Laat een kind antwoorden.)* Wie snapt dat niet?
En heel vaak ben ik zo fijn aan het afwassen dat ik de tijd helemaal vergeet. Hoe vul je dat in? *(Laat een kind antwoorden.)* Wie snapt dat niet?
En verder vind ik dat afwassen wel een beetje op spelen lijkt. Voor mij is afwassen net een spelletje. Hoe moet ik dat invullen? *(Laat een kind antwoorden.)* Wie snapt dat niet? Wie heeft er nog iets te vragen?
Nu krijgen jullie allemaal een boekje waarin 30 van zulke vragen staan. Maak dat boekje nog maar niet open. Laat het maar gewoon liggen.

(Als alle kinderen een boekje hebben:)
Op de voorkant van het boekje staat onderaan naam, school, groep enz. Dat mag je nu invullen met POTLOOD. Dus bij naam vul je in hoe je heet, bij school op welke school je zit, enz. Als je daarmee klaar bent leg je je potlood neer.

(Als alle kinderen het potlood hebben neergelegd:)
Sla nu de eerste bladzijde om. Op de bladzijde die je nu voor je hebt staat OEFENING. Dat is deze bladzijde *(Staat op het bord of overhead-sheet.)* Vul deze bladzijde maar in en leg je potlood neer als je klaar bent met deze bladzijde. Dus nog niet verder gaan naar de volgende bladzijde tot ik dat zeg. *(Als alle kinderen klaar zijn wordt één kind voor de klas geroepen en hij/zij vult de vraag in voor de klas. Nog éénmaal wordt gevraagd of er nog iemand vragen heeft. Als dat niet het geval is mogen de kinderen de overige vragen van de vragenlijst invullen.)*

De vragenlijst bestaat uit de volgende items, die op dezelfde wijze als bovengenoemde voorbeelden dienen te worden beantwoord:

1. Teken je wel eens?
2. Kijk je wel eens naar de televisie?
3. Verzin je wel eens een verhaaltje of een versje?
4. Verzin je wel eens liedjes?
5. Schrijf je wel eens een brief?
6. Speel je wel eens buiten met andere kinderen?
7. Zit je op een club?
8. Voer je wel eens een toneelstukje op of speel je wel eens poppenkast?
9. Verzin je wel eens een spelletje?
10. Probeer je wel eens iets te maken of bouwen?
11. Luister je wel eens naar muziek?
12. Ga je wel eens op avontuur uit?
13. Schrijf je wel eens in je dagboek?
14. Ben je wel eens aan het zingen?
15. Ga je wel eens wandelen?
16. Speel je wel eens met poppen of speel je wel eens waarbij je doet alsof?
17. Maak je wel eens iets lekkers klaar?
18. Ga je wel eens bij familie of andere mensen op bezoek?
19. Zit je op ballet?
20. Zit je wel eens gewoon naar mensen of dingen te kijken?
21. Maak je wel eens muziek?
22. Lees je wel eens?
23. Doe je aan sport?
24. Ga je wel eens iets doen met andere kinderen?
25. Maak je zelf wel eens speelgoed?

26. Speel je wel eens in je eentje buiten?
27. Ben je wel eens met dieren bezig?
28. Knutsel of handwerk je wel eens?
29. Zit wel eens lekker te luieren?
30. Zijn er nog meer dingen die je graag doet als je vrij hebt?

Appendix 4a

Parents questionnaire

This questionnaire consists of two parts. In the first part a number of statements are given about children's play in general. We would like to know to what degree you agree with these statements. In the second part we ask you to answer some thirty questions about your child's play in particular. You are supposed to answer the questions in the second part in a different way than those in the first part. We therefore ask you to read both instructions carefully before answering the questions. Could you please fill in your name and your child's name at the bottom of this page. Thank you for your cooperation.

PART 1

On the following pages there are fourteen statements about children's play. We would like to know to what extent you agree with these statements. We will show you how to do this by means of the following example.

EXAMPLE

Preschoolers play more than schoolchildren.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

If you think this statement certainly has an element of truth in it, tick as follows:

I----------I---------X---------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

If you think this is absolutely true, tick as follows:

I---------X---------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

If you think this is not all together true, tick as follows:

I----------I----------I----------I---------X---------I----------I
totally agree agree no opinion disagree totally disagree

If you think this is absolutely not true, tick as follows

I----------I----------I----------I----------I---------X---------I
totally agree agree no opinion disagree totally disagree

It may occur that you do not know what you think of a certain statement. In many cases this will be because you have never really thought about it. If this is the case, please give it some more thought. If you are really not able to comment a certain statement, tick as follows

I----------I----------I---------X---------I----------I----------I
totally agree agree no opinion disagree totally disagree

1. It is necessary that parents sometimes interfere with their children's play.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

2. It is important that parents should play with their children.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

3. If an adult has something to say to a child, the child should stop playing in order to listen.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

4. Children play spontaneously, parents therefore do not have to encourage them.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

5. Parents should sometimes set limits to their child's play.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

6. When a child is playing, adults should not disturb them.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

7. Children should be allowed to play if and where they like as long as their safety is not endangered.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

8. Parents should teach their children how to enjoy themselves.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

9. Parents should often be actively engaged in their children's play.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

10. It is important that parents should encourage their children to play on their own.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

11. Children should be allowed to play whatever they want, even if a parent thinks certain play is unfit for the child.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

12. As soon as children disturb adults with their play, the children should do something else.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

13. Parents should not interfere with childrens' play, it should be left to the children.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

14. Parents have the right to forbid children to play when they think certain play to be unfit for their child.

I----------I----------I----------I----------I----------I
totally agree agree no opinion disagree totally disagree

PART 2

In this part of the questionnaire we ask you to answer thirty-two questions about your child's play. We do not ask you to comment on play in general, but we would like to know what your child's play looks like. We therefore ask you to answer the questions in a way that we can get a clear impression of the situation at your home. Feel free to comment on the questions if you want. You can use the backs of the pages.

1. Are there any places in the house where your child is not allowed to play?

2. Do you allow your child to play with equipment belonging to adults?

3. Do you encourage your child to play with other children as often as possible?

4. Your child is busy playing and guests arrive. Do you ask your child to stop playing to welcome the guests.

5. Do you ever propose your child to play a game with you?

6. If your child desperately wants a certain toy, do you buy it even when you think it is not fit for your child?

7. Does it ever happen that you do not approve of your child playing, because he/she makes a mess of the house?

8. Are you prepared to play with your child when (s)he asks you to?

9. When your child is bored, do you think of something for her/him to do?

10. Your child is playing with a toy but she/he uses it the wrong way and enjoys this. Do you explain him/her the proper use of the toy?

11. Do you ever postpone dinner or your child's going to bed because your child is enjoying playing so much?

12. Do you ever collect waste materials or do you save up old clothes so that your child can play with them?

13. You want to clean a room, but your child is on the floor playing. Do you ask her/him to go and play somewhere else?

14. Do you ever encourage your child to make his/her own toys?

15. You want to call a friend to have a chat, but your child is busy playing near the phone. Do you postpone the phone call until she/he has finished playing?

16. Do you ever play make-believe with your child?

17. Do you ever take time to watch your child play?

18. When your child is busy playing but getting him/herself very dirty, do you forbid him/her to play any further?

19. Do you ever make toys for your child or help him/her doing this?

20. Your child is very busy playing but is doing this rather loudly while you want to watch television. Do you ask her/him to do something else?

21. If your child comes home with a friend whom you do not approve, do you make this known to your child?

22. Have you ever enrolled your child as a member of a club?

23. If your child wants to play with friends at your home, does she/he have to ask your permission first?

24. If certain things are missing in order to play a game, do you encourage your child to come up with a solution him/herself?

25. Have you made agreements with your child about boundaries outside, in which she/he is allowed to play?

26. Are there any games that you forbid your child to play?

27. Do you only buy your child toys at Christmas or on his/her birthday?

28. When your child plays with friends at your home, do you keep an eye on what they are doing?

29. If your child is completely occupied with his/her play and you want him/her to go out and buy something for you, do you wait until she/he has finished playing?

30. Do you ever ask your child what she/he played or is playing?

31. Is there a hobbyroom in your house where your child can do handicrafts?

32. Have you ever sent your child (with or without playmates) out of the house because things got too wild inside?

Appendix 4b

Vragenlijst voor de ouders

Deze vragenlijst bestaat uit twee delen. In het eerste deel van de lijst worden een aantal uitspraken gedaan over het spel van *kinderen in het algemeen.* We willen graag weten in hoeverre u het met deze uitspraken eens bent. In het tweede deel stellen we u een dertigtal vragen over het spel van *uw kind in het bijzonder.* In het tweede deel dient u dus op een andere manier te antwoorden dan in het eerste deel. We vragen u daarom om zowel bij het eerste als bij het tweede deel goed de instructies te lezen voor het beantwoorden van de vragen. Wilt u voor u begint onderaan deze bladzijde uw naam en de naam van uw kind invullen.
Bij voorbaat hartelijk dank voor uw medewerking.

DEEL 1

Op de volgende bladzijden staan 14 uitspraken over het spel van kinderen. We willen graag van u weten in hoeverre u het met deze uitspraken eens bent. Hoe u uw mening over deze uitspraken kunt weergeven, zullen we u duidelijk maken aan de hand van het onderstaande voorbeeld.

VOORBEELD

Als kinderen nog niet naar school gaan spelen ze meer dan wanneer ze op school zitten.

I----------I----------I----------I----------I----------I

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

Bent u over het algemeen van mening dat deze stelling waar is, dan geeft u dat op de volgende manier aan:

I----------I---------X---------I----------I----------I----------I

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

Zegt u "Ik sta voor honderd procent achter deze stelling, natuurlijk is dat zo", dan geeft u dat op deze manier weer:

I---------X---------I---------I---------I---------I---------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

Bent u van mening zijn dat deze uitspraak over het algemeen niet waar is, dan geeft u dat zo aan:

I---------I---------I---------I---------X---------I---------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

Vindt u de uitspraak volslagen onzin of is deze volgens u volstrekt onjuist, dan geeft u dat op de onderstaande manier weer:

I---------I---------I---------I---------I---------X---------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

Het kan ook voorkomen dat u eigenlijk niet zo goed weet wat u van de uitspraak vindt. In veel gevallen zal dat zijn omdat u eigenlijk nooit zo bij deze uitspraak heeft stil gestaan. Denkt u in deze gevallen daarom nog eens goed over de uitspraak na. Kunt u echt geen mening over de uitspraak geven, dan kun u dit op de volgende manier aangeven:

I---------I---------I---------X---------I---------I---------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

1. Het is noodzakelijk dat ouders af en toe ingrijpen in het spel van hun kinderen.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

2. Het is belangrijk dat ouders met hun kinderen spelen.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

3. Als een volwassene een kind iets heeft te zeggen, dient een kind zijn spel te onderbreken om te luisteren.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

4. Kinderen spelen uit zichzelf, daartoe hoeven de ouders ze niet te stimuleren.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

5. Ouders dienen soms grenzen te stellen aan het speelgedrag van hun kind.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

6. Als een kind fijn aan het spelen is, dienen volwassenen het kind niet te storen.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

7. Kinderen mogen spelen waar en wanneer ze maar willen, zolang hun veiligheid niet in gevaar wordt gebracht.

helemaal mee eens	mee eens	geen mening	niet mee eens	helemaal niet mee eens

8. Ouders moeten hun kinderen leren zich zelf te vermaken.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

9. Ouders dienen geregeld actief met het spel van hun kinderen bezig te zijn.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

10. Het is belangrijk dat ouders hun kinderen stimuleren zelf te spelen.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

11. Kinderen moeten kunnen spelen wat ze willen, ook al vindt de ouder bepaald spel niet zo geschikt.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

12. Zodra kinderen volwassenen storen met hun spel, is het beter dat ze iets anders gaan doen.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

13. Spelen laat je aan kinderen over, daar bemoei je je als ouder niet mee.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

14. Ouders hebben het recht om kinderen bepaald spel te verbieden wanneer ze dat spel ongeschikt vinden.

I----------I----------I----------I----------I----------I
helemaal mee eens | mee eens | geen mening | niet mee eens | helemaal niet mee eens

DEEL 2

In dit tweede deel van de vragenlijst stellen we u 32 vragen over het spel van uw kind. We vragen u dus niet meer om een mening over het spel van kinderen in het algemeen maar we willen graag weten hoe het spel van *uw* kind er uitziet. Daarom verzoeken we u de vragen op de volgende bladzijden zodanig te beantwoorden dat de situatie bij u thuis zo duidelijk mogelijk naar voren komt.

Wanneer u bij bepaalde vragen nog iets meer zou willen opmerken, doet u dat dan gerust. U kunt hier eventueel ook de achterkant van de bladzijden voor gebruiken.

1. Zijn er plaatsen in huis waar uw kind niet mag spelen?

2. Mag uw kind spullen en apparatuur van volwassenen gebruiken om mee te spelen?

3. Moedigt u uw kind aan om zoveel mogelijk met andere kinderen te spelen?

4. Uw kind is druk aan het spelen en er komt visite. Vraagt u hem/haar dan zijn/haar spel te onderbreken om de visite te komen begroeten?

5. Stelt u uw kind wel eens voor om samen een spelletje te gaan spelen?

6. Als uw kind bepaald speelgoed dolgraag wil hebben maar u vindt het niet zo geschikt, koopt u het dan voor hem/haar?

7. Komt het wel eens voor dat u het niet goed vindt dat uw kind bepaald spel speelt omdat dit zoveel rommel geeft?

8. Bent u meestal bereid om met uw kind mee te spelen als hij/zij u daarom vraagt?

9. Als uw kind zich verveelt, verzint u dan iets wat hij/zij kan gaan doen?

10. Uw kind speelt op een verkeerde manier met speelgoed en heeft daar plezier in. Legt u dan uit hoe het eigenlijk met het speelgoed zou moeten spelen?

11. Stelt u het eten of het naar bed gaan wel eens uit, omdat uw kind juist zo fijn aan het spelen is.

12. Verzamelt u wel eens kosteloos materiaal of bewaart u oude kleren, zodat uw kind daar mee kan spelen?

13. U wilt een kamer gaan stofzuigen maar uw kind zit daar juist op de grond te spelen. Vraagt u hem/haar dan ergens anders te gaan spelen?

14. Brengt u uw kind wel eens op het idee om zelf speelgoed te maken?

15. U wilt een kennis bellen om even bij te kletsen maar uw kind is juist fijn aan het spelen bij de telefoon. Wacht u dan met bellen tot hij/zij is uitgespeeld?

16. Speelt u met wel eens fantasiespel (doen alsof) met uw kind?

17. Neemt u er wel eens de tijd voor om naar uw kind te kijken als hij/zij aan het spelen is?

18. Als uw kind fijn aan het spelen is maar zich daarbij erg vuil maakt, verbiedt u hem/haar dan verder te spelen?

19. Maakt u zelf wel eens speelgoed voor uw kind of helpt u hem/haar wel eens bij het maken van eigen speelgoed?

20. Uw kind is heerlijk aan het spelen maar doet dit nogal luidruchtig, terwijl u graag televisie wilt kijken. Vraagt u hem/haar dan wat anders te gaan spelen?

21. Als uw kind thuis komt met een vriendje of vriendinnetje dat u niet zo geschikt vindt, geeft u het dan te kennen?

22. Heeft u uw kind lid gemaakt van een club of vereniging?

23. Als uw kind met vriendjes of vriendinnetjes wil spelen, is het de gewoonte dat hij/zij eerst even met u overlegt of dat goed is?

24. Als uw kind attributen mist om een bepaald spel te kunnen spelen, moedigt hem/haar dan aan om daar zelf een oplossing voor te vinden?

25. Heeft u met uw kind afgesproken dat hij/zij met het buiten-spelen binnen een bepaald terrein blijft?

26. Zijn er bepaalde spelletjes die u uw kind verbiedt om te spelen?

27. Koopt u buiten Sinterklaas, Kerstmis en verjaardagen om wel eens speelgoed voor uw kind?

28. Als uw kind samen met een vriendje of vriendinnetje bij u speelt, houdt u dan in de gaten wat ze doen?

29. Uw kind is volledig verdiept in zijn/haar spel en u wilt graag dat hij/zij een boodschap voor u doet. Wacht u dan met dat aan hem/haar te vragen tot hij/zij is uitgespeeld?

30. Vraagt u uw kind wel eens naar wat hij/zij aan het spelen is of heeft gespeeld?

31. Is er een bepaalde ruimte in huis waar uw kind kan knutselen of timmeren?

32. Gebeurt het wel eens dat u uw kind met eventuele vriendjes of vriendinnetjes naar buiten stuurt omdat het er binnen te wild aan toe gaat?

Summary

Children (and adults) often spend a considerable amount of time playing. Therefore play may not be lacking in the theorizing and empirical research within developmental psychology. There are nevertheless still many unanswered questions about the characteristics, functions, antecedents and consequences of play. Vandenberg (1980) remarked that the lack of a precise definition in most studies could very well be the cause for many of these questions. In addition, the often contradictory results that arise from these studies may block the way to more precise insights into play. This study investigates whether it is possible to gain more insights into play when an observation procedure for play is used which does stem from a theoretically sound definition of play. The aim of this study is twofold. First, it is tried to find an observation procedure in accordance with the existing theories of play. Second, it examines a number of relationships between play and other variables; relationships which can be assumed with regard to the result of earlier studies. Both aims, as well as the framework of this manuscript, are described in Chapter 1. The manuscript consists of two parts. The first part (Chapters 2 and 3) adresses the first aim. The second part, which consists of Chapters 4 and 5, concerns the second aim. In Chapter 6, a general discussion concludes the manuscript.

In the first part we start by taking into account Vandenberg's warning that the lack of a definition of play may hamper an adequate observation of play. In Chapter 2, a summary is presented of the most common theories on the defining characteristics of play. Out of this summary, a number of recurring characteristics are distilled which will serve as a theoretical basis for recognizing play reliably. Following the insights of Rubin, Fein and Vandenberg (1983), these characteristics are defined at three levels. On a dispositional level, play is considered as autotelic acting in a frame of reality, within which self-created rules and meanings prevail. On a behavioral level, these dispositional characteristics can become manifest in different ways. This is why a categorisation of the various types of play was looked for, in which play behaviors referred to the same type of play when the dispositional characteristics became manifest in a similar way. We arrived at a great number of these categorisations. Piaget's (1951) categorisation is considered the most appropriate, provided that its types of play (i.e., practice play, symbolic play and games with rules) are extended with a fourth type of play (i.e., constructive play). On a contextual level, it is concluded that play behavior will be more likely to occur in the presence of:

- attractive play material or playmates
- the agreement between child and adult that the child is free to do as (s)he pleases within clear limits,
- minimal adult involvement
- a friendly atmosphere within which the child feels safe and at ease.

In addition fatigue, hunger or other forms of bodily stress should be limited as much as possible.

From these characteristics, three guidelines were deduced which should be taken into account in order to assess adequately whether a child plays or not. First of all, in order to guarantee the autotelic nature a child cannot be given the instruction to play. Therefore, all five conditions mentioned above should be present to make play occur.

In order to determine whether a child indeed acts playfully, and thus autotelicly, continuous observation is needed. in addition, clear behavioral descriptions of possible types of play, like Piaget's categorisation (1951), are necessary. At the end of Chapter 2, it is shown that Rost's observation procedure (1986) complies with these guidelines.

The procedure is described more extensively in Chapter 3; it consists of the inconspicuous videotaping of the children's behavior while the children are confronted with a novel play object. the procedure is used in a sample of 94 children (31 nine-year-olds, 32 ten-year-olds and 31 eleven-year-olds). Half the children in each age group are male, the other half is female. After observing the children's behavior, Cohen's kappa shows that it is indeed possible to assess reliably whether a child plays or not and in what way (which type of play). Next, the consistency of both the quantity and quality of the play behavior over different situations is examined. It is also investigated is to what extent moderating factors, like available play material, influence play behavior. Therefore the children are presented with a different play object in each session. A new object, a robot, is designed to offer the same play opportunities as Rost's ventriloquist's puppet, but also providing the possibility of constructive play. Analysis of the play behaviors in both sessions indicate that play material does indeed influence the occurrence, quantity and quality of play in the sense that the robot is more attractive to play with than the puppet. There is also a reasonable degree of consistency in the play behavior across sessions. These results, however, only concern play in general. When specific types of play are examined, different results are found. Only the results for combinatorial manipulative play are similar to play in general. Symbolic play is not consistent and occurs more often with the puppet. Simple manipulative play also lacks consistency. Besides it was also found that, despite the consistency, a considerable amount of variance in the play behaviors in both sessions remained. It was therefore concluded that one should be cautious when using the assessment of play behavior in a certain situation as an assessment of children's general playfulness. This is especially the case when the more specific types of play are concerned. More extensive research into the influence of play material and other moderating factors on play behavior is necessary.

The second part of the manuscript presents a model concerning the relationships between play, creativity, leisure and parental behaviors and attitudes towards play. The relationships between play, creativity and leisure are investigated in Chapter 4. Here it is examined whether a relationship between play and creativity does indeed exist and whether a general underlying playfulness may be the mediating factor in this relationship. This playfulness becomes manifest in play behavior in all kinds of situations pre-eminently, but also in leisure, since in leisure one is able to act autotelicly. Therefore, the same 94 children were asked to report on 30 different leisure activities, whether they ever perform these activities and to what extent they do so in a playful way (that is autotelicly and within a self-created frame of reality). A relationship between play and leisure will show evidence for the existence of a general underlying playfulness. A relationship between leisure and creativity should exist in order to make it plausible that playfulness is indeed the mediating factor in the relationship between play and creativity. The children's creativity was assessed by means of two different tests of Wallach and Kogan (1965). No robust relationships were found between play

and creativity. A significant relationship was found between the quality of play and the degree to which one experiences his/her leisure as playful. The relationship was found for boys and 9-year-olds in particular, however, and concerns play with the puppet only. No relationship was found between leisure and creativity. In summary, no evidence was found for a relationship between play and creativity with playfulness as a mediating factor.

In Chapter 5, the relationship between children's play behavior and their parents' behavior and attitude towards play is examined. The parental attitudes and behaviors were assessed by means of an adapted version of the questionnaire of Boshop and Chace (1971). However, we did not succeed in making a reliable assessment of all parental characteristics. Only opinions and practices on controlling the child's play behavior could be assessed reliably. The items with reference to a sensitive engagement in and stimulation of the child's play showed little internal consistency. No significant relationship was found between the children's play and their parents' reported opinions and practices on controlling their children's play.

In the last chapter it is discussed whether the aims of the entire study are indeed fulfilled. With reference to our first aim, it is concluded that a reliable assessment of children's play is possible at a behavioral level. However, one should be careful in using this assessment as an indication of a child's general playfulness. The relationship between play behavior and the underlying disposition to play remains unclear. This leads us to the classic discussion within personality theories. To what extent is behavior determined by personality traits and to what extent by environmental factors? Referring to the second aim, it is concluded that we did not succeed in finding empirical evidence for the hypothesized relationships between play and the other variables. Since all variables were measured reliably, except for the parental characteristics, an unreliable assessment of these variables does not explain the absence of significant relationships. It is possible that the differences in age between the children in our studies and those of previous studies may account for the discrepant results. However, it is also possible that the earlier studies were troubled by artefacts that are prevented in the present study. Yet another explanation may be found in the theory behind the model. The existence of a general playfulness, considered to be the mediating factor in the model, may be questionable. This leads us back to the question of whether and how a disposition to play underlies play behavior. It is, therefore, suggested to concentrate further research on the existence and nature of a disposition to play. The manuscript concludes with suggestions for such future studies.

Samenvatting

Ieder kind (en iedere volwassene) brengt een aanzienlijke hoeveelheid tijd door met spelen. Derhalve mag spel niet ontbreken in de theorievorming en het empirisch onderzoek binnen de ontwikkelingspsychologie. Toch is er nog veel onduidelijkheid over de aard, functie, antecedenten en consequenten van spel. Dit is des te merkwaardiger wanneer men ziet hoeveel theorieën zijn verschenen en hoeveel empirisch onderzoek er is verricht op het gebied van spel. Vandenberg (1980) merkt op dat het ontbreken van een precieze definitie van spel in de meeste onderzoeken wel eens de oorzaak kan zijn van veel onduidelijkheden. Daarnaast staan de vaak tegenstrijdige onderzoeksresultaten een scherper inzicht in spel in de weg. In dit onderzoek zal worden nagegaan of het mogelijk is meer inzicht in spel te krijgen wanneer een observatie-procedure voor spel wordt gebruikt die wel gebaseerd is op een theoretisch gefundeerde definitie van spel.

De doelstelling van het onderzoek is tweeledig. Allereerst zal worden gezocht naar een procedure om spel adequaat te observeren die aansluit op de bestaande theoretisch inzichten in spel. De tweede doelstelling omvat het toetsen van een aantal relaties tussen spel en andere variabelen, welke op basis van eerdere onderzoekingen kunnen worden verondersteld. De beide doelstellingen alsmede de opzet van het proefschrift worden beschreven in hoofdstuk 1. Vervolgens valt het proefschrift uiteen in twee delen. In het eerste deel, dat de hoofdstukken 2 en 3 omvat, wordt geprobeerd aan de eerste doelstelling te beantwoorden. Het tweede deel, dat de hoofdstukken 4 en 5 omvat, betreft de beantwoording van de tweede doelstelling. In hoofdstuk 6 wordt het proefschrift afgesloten met een algemene discussie.

In het eerste deel wordt allereerst gehoor gegeven aan Vandenberg's opmerking (1980) dat het ontbreken van een definitie van spel een adequate observatie van spel in de weg kan staan. Hoofdstuk 2 omvat een overzicht van de meest gehanteerde theorieën over de definiërende kenmerken van spel. Vanuit dit overzicht worden een aantal steeds terugkerende karakteristieken gedistilleerd, welke zullen dienen also een theoretische fundering voor het betrouwbaar herkennen van spel. Aansluitend op de inzichten van Rubin, Fein en Vandenberg (1983) worden deze karakteristieken op 3 niveaus gedefinieerd. Op dispositioneel niveau wordt spel gezien also een autotelische activiteit binnen een afgebakende realiteit waarbinnen eigen regels en betekenissen gelden. Op gedragsmatig niveau kunnen deze kenmerken zich echter verschillend uiten. Derhalve is gezocht naar een categorisering van spel in verschillende typen, waarbij speelse gedragingen tot dezelfde categorie behoren wanneer ze op overeenkomstige wijze de dispositionele kenmerken laten zien. Het aldus categoriseren resulteerde in een groot aantal indelingen. De indeling van Piaget (1951) wordt de meest geschikt geacht, mits de door hem onderscheiden speltypen (oefenspel, symbolisch spel en regelspel) worden uitgebreid met een vierde spelsoort, constructiespel. Op contextueel niveau kunnen we concluderen dat spel met name zal voorkomen also aan een vijftal condities is voldaan:

- de aanwezigheid van aantrekkelijk speelmateriaal of speelkameraadjes,
- de afspraak tussen kind en volwassene dat het kind vrij is te doen wat hij/zij wil

binnen duidelijke grenzen,
- zo weinig mogelijk inmenging van volwassenen,
- een vriendelijke atmosfeer zodat het kind zich veilig en op zijn/haar gemak voelt
- de afwezigheid van vermoeidheid, honger of ieder andere vorm van lichamelijk ongemak.

Vanuit deze karakteristieken van spel kunnen 3 richtlijnen worden afgeleid waaraan moet worden voldaan wil men adequaat kunnen vaststellen of er al dan niet sprake is van speelgedrag. Allereerst dient het autotelisch karakter van spel te worden gewaarborgd. Dit impliceert dat men een kind niet de instructie kan geven om te spelen. Om het toch tot spel uit te lokken moeten vijf bovengenoemde condities aanwezig zijn om spel. Vervolgens dient te worden nagegaan of een kind inderdaad speelt, en dus autotelisch handelt. Hiertoe is continue observatie nodig. Daarnaast zijn er duidelijke gedragsbeschrijvingen van de mogelijke spelvormen nodig, zoals die van Piaget (1951). Hoofdstuk 2 wordt besloten met de conclusie dat de observatie-procedure van Rost (1986) aan al deze richtlijnen voldoet.

In hoofdstuk 3 wordt de procedure nader beschreven; het gedrag van kinderen tijdens de confrontatie met een onbekend speel-object wordt ongemerkt geregisteerd. De procedure is toegepast in een steekproef van 94 kinderen; 31 kinderen van 9 jaar, 32 van 10 jaar en 31 van 11 jaar. De helft van de kinderen in iedere leeftijdsgroep bestaat uit jongens, de andere helft uit meisjes. Na observatie van de gedragingen van de kinderen blijkt, uit de waarden voor Cohen's kappa, dat het inderdaad mogelijk is betrouwbaar te bepalen of een kind speelt en op wat voor een manier (welke spelsoort).

Vervolgens is in hoofdstuk 3 de consistentie onderzocht van zowel de kwaliteit also de kwantiteit van het speelgedrag over verschillende situaties. Daarnaast is nagegaan in hoeverre modererende factoren, zoals speelmateriaal, het speelgedrag kunnen beïnvloeden. Daartoe is het speelgedrag van de kinderen tweemaal geobserveerd eenmaal met het speel-object van Rost en eenmaal met een eveneens onbekend speel-object dat speciaal voor dit onderzoek is ontworpen. Het nieuwe speelobject, een robot, biedt dezelfde speelmogelijkheden also het speelobject van Rost, een buikspreekpop, maar maakt tevens een extra spelvorm mogelijk, nl. constructie-spel. Het vergelijken van het speelgedrag in beide sessies leidt tot volgende resultaten: speelmateriaal blijkt inderdaad van invloed te zijn op speelgedrag. De robot wist meer kinderen tot spelen uit te lokken dan de pop. De kinderen speelden ook langer met de robot en de kwaliteit van het spel was hoger. Er werd een redelijke mate van consistentie in het speelgedrag over de beide sessies gevonden. Deze conclusies gelden echter uitsluitend voor speelgedrag in het algemeen. Voor de afzonderlijke speltypen worden andere resultaten gevonden. Zo blijkt alleen combinatoir oefenspel zich te gedragen also spel in het algemeen. Symbolisch spel wordt juist vaker en langer gespeeld met de pop en is niet consistent en ook het eenvoudige oefenspel is niet consistent. Bovendien werd er naast consistentie ook een redelijke mate van variabiliteit gevonden. Derhalve wordt geconcludeerd dat er nog enige voorzichtigheid moet worden betracht bij het gebruik van de observatie van speelgedrag in een bepaalde situatie also maat voor speelsheid in het algemeen. Dit geldt met name wanneer het de afzonderlijke speltypen betreft. Vooralsnog is uitgebreider onderzoek naar de invloed van speelmateriaal op het speelgedrag noodzakelijk.

Het tweede deel van het proefschrift wordt begonnen met een uiteenzetting van een model aangaande de veronderstelde relaties tussen spel, creativeit, vrijetijdsbesteding en ouderlijke gedragingen en attituden ten aanzien van spel. De relaties tussen spel, creativiteit en vrijetijdsbesteding worden onderzocht in hoofdstuk 4. Er wordt nagegaan of er inderdaad een relatie bestaat tussen spel en creativiteit alsmede of een algemene, onderliggende speelsheid de mediërende factor kan zijn in deze relatie. Deze speelsheid zal zich uiteraard vooral in het speelgedrag in verschillende situaties manifesteren maar ook in vrijetijdsbesteding zal deze speelsheid tot uiting komen. Vrije tijd is immers een situatie bij uitstek waarin autotelisch handelen mogelijk is. Derhalve is aan dezelfde 94 kinderen gevraagd van een 30-tal vrijetijdsbestedingen aan te geven of ze die wel eens uitvoeren en is geïnventariseerd in hoeverre dat op een speelse manier (d.w.z. autotelisch en binnen een eigen realiteit) geschiedt. Een significante relatie tussen speelgedrag en vrijetijdsbesteding maakt aannemelijk dat er inderdaad een algemene, onderliggende speelsheid bestaat. Daarnaast dient er een relatie te bestaan tussen vrijetijdsbesteding en creativiteit wil men kunnen aannemen dat deze speelsheid de mediërende factor is in de relatie tussen spel en creativiteit. De creativiteit van de kinderen werd bepaald aan de hand van een tweetal tests van Wallach en Kogan (1965). Er worden geen robuuste, significante relaties gevonden tussen spel en creativiteit. Wel wordt een significante relatie gevonden tussen de kwaliteit van spel en de mate waarin men vrijetijdsbesteding also speels ervaart. De relatie wordt echter met name voor jongens en 9-jarigen gevonden en betreft uitsluitend het spel met de pop. Tussen vrijetijdsbesteding en creativiteit wordt geen relatie gevonden. Al met al kan een relatie tussen spel en creativiteit met speelsheid also mediërende factor niet worden aangetoond.

In hoofdstuk 5 wordt de relatie onderzocht tussen het speelgedrag van de kinderen en het gedrag en de attitude van hun ouders ten aanzien van kinderspel. Het gedrag en de attitude van de ouders werden nagegaan aan de hand van een vragenlijst. Het blijkt echter moeilijk om een betrouwbare maat te vinden voor de ouderlijke karakteristieken. Alleen de gedragingen en meningen van ouders met betrekking tot het controleren van het speelgedrag van hun kind konden betrouwbaar worden gemeten. De items aan de hand waarvan de gedragingen en de meningen van de ouders betreffende hun sensitieve betrokkenheid bij en stimulatie van het kinderspel werden bepaald, vertoonden onvoldoende interne consistentie. Er wordt geen significante relatie gevonden tussen het spel van de kinderen en de gerapporteerde gedragingen en meningen van ouders betreffende het controleren van spel.

In het laatste hoofdstuk wordt geïnventariseerd in hoeverre het onderzoek aan de beide algemene doelstellingen heeft kunnen beantwoorden. Met betrekking tot de eerste doelstelling wordt geconcludeerd dat het inderdaad gelukt is om op gedragsniveau een betrouwbare maat voor spel te vinden. Er is echter voorzichtigheid geboden bij het gebruik van deze maat also een maat voor speelsheid in het algemeen. Er blijft veel onduidelijkheid over de relatie tussen speelgedrag in een specifieke situatie en de onderliggende dispositie tot spelen. In feite brengt deze conclusie ons naar de bekende discussie binnen de persoonlijkheidsleer; in hoeverre wordt gedrag bepaald door persoonlijkheidskenmerken en in hoeverre door omgevingsfactoren. Met betrekking tot de tweede doelstelling wordt geconcludeerd dat het niet gelukt is om de veronderstelde

relaties empirisch aan te tonen. Daar alle variabelen, met uitzondering van de ouder-karakteristieken, betrouwbaar zijn gemeten, kan het onbetrouwbaar meten van de variabelen geen verklaring zijn voor het uitblijven van significante relaties. Wel kan een verklaring worden gezocht in het verschil in leeftijd tussen de kinderen in onze steekproef en de jongere kinderen in voorgaande onderzoeken. Een andere verklaring kan zijn dat de resultaten in voorgaande onderzoeken beïnvloed zijn door artefacten. Het huidige onderzoek was er juist op gericht deze artefacten uit te sluiten. Weer een andere verklaring kan gelegen zijn in de theorie achter het model. Het bestaan van een algemene speelsheid, welke de mediërende factor in het model wordt beschouwd, kan worden betwijfeld. Dit brengt ons terug naar de vraag of en hoe een dispositie tot spelen aan speelgedrag ten grondslag ligt. Er wordt dan ook voorgesteld om toekomstig onderzoek vooral te concentreren op de het achterhalen van het bestaan en de aard van een dispositie tot spelen. Het proefschrift wordt afgesloten met suggesties voor dit soort onderzoek.

Curriculum vitae

Lisette van der Poel werd op 11 augustus 1964 te Beverwijk geboren. In 1982 behaalde ze het Gymnasium diploma aan het Pius X College te Beverwijk. In datzelfde jaar begon zij haar studie psychologie aan de Universiteit van Amsterdam. Ze koos ontwikkelingspsychologie als hoofdrichting. In 1987 studeerde ze met genoegen af nadat ze een scriptie had geschreven waarin een onderzoek naar het zelfconcept bij kleuters wordt gerapporteerd. In dit onderzoek werd het speelgedrag van kleuters geobserveerd om na te gaan op basis van welke karakteristieken kinderen van deze leeftijd zichzelf typeren.

Van 1988 tot 1993 was ze als AIO werkzaam bij de Katholieke Universiteit Nijmegen. Ook hier hield ze zich bezig met de observatie van speelgedrag, ditmaal van 9 tot 12 jaar oude kinderen, en onderzocht ze de relaties tussen spel, creativiteit, vrijetijdsbesteding en karakteristieken van ouders. In dit proefschrift wordt verslag gedaan van dit onderzoek.

Vanaf augustus 1993 is Lisette als docente en onderzoekster werkzaam bij Centrum Spelmethodiek van de Hogeschool Midden Nederland.

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